IND E 315 Probability & Statistics for Engineers

Summer 2026 Course Syllabus

Instructor:	Ryan Lin
Office Hours:	T/Th after class (10:10-11:10am) or by appointment
Office Hours Zoom:	https://washington.zoom.us/j/97713537636
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TA:	Sebastian Halicki
Office Hours:	Mondays (3:00-4:00PM)
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Grader:	Ashley Woodworth
Office Hours:	Wednesdays (9:00-10:00AM) over Zoom
Office Hours Zoom:	https://washington.zoom.us/j/97713537636
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Course Meetings: Regular class meeting are held **ON ZOOM** T/Th 8:30 – 10:15 AM
Zoom Link: https://washington.zoom.us/j/97713537636
Exams will be held fully **IN PERSON** in IEB G109.
(see more details in Course Policies - Exam)

Course Description: Application of probability theory and statistics to engineering problems, distribution theory and discussion of particular distributions of interest in engineering, statistical estimation and data analysis. Illustrative statistical applications may include quality control, linear regression, and analysis of engineering datasets.

Prerequisite: Basic knowledge in calculus and linear algebra is expected. Completion of either MATH 135, MATH 136, MATH 207, or AMATH 351 is recommended but not necessary. Some course content may overlap with STAT 340, 341, or 342.

Textbook:
Montgomery, D. C., & Runger, G. C., 2010. Applied statistics and probability for engineers (7th Edition). John Wiley & Sons.

IMPORTANT - *To access the e-textbook through the Day One Access program, you may check the WILEY Text Registration page for more information*. **The Opt-Out/Payment Deadline for Summer 2026 is Monday, July 6**.

Other useful materials:
1. Ross, S. M., 2018. A first course in probability (10th Edition). Pearson. https://www.cs.utexas.edu/~abdonm/SDS%20321/a_first_course_in_probability.pdf

2. Gürsoy, K., Baykal-Gürsoy, M., and Gürsoy, A., 2015. An Introduction to Probability and Statistics. Rutgers. https://sites.rutgers.edu/kemal-gursoy/wp-content/uploads/sites/294/2020/06/GursoyStatBookUpdate.pdf

3. Walpole, R. E., Myers, R. H., Myers, S. L., and Ye, K., 2012. Probability and statistics for engineers and scientists (9th Edition). New York: Macmillan.

4. UCD Math 135A/135B Lecture Notes for Introductory Probability by Janko Gravner: https://www.stat.berkeley.edu/~aldous/134/gravner.pdf.

5. UW Psy522/524 Introduction to Statistics and Data Analysis Lecture Notes by Geoffrey M. Boynton: https://courses.washington.edu/psy524a/_book/

Course website on Canvas:

- You are responsible for visiting Canvas frequently for announcements and updates.
- All course materials can be downloaded from Canvas or open-source online.
- Homework and solutions will be posted on Canvas. Assignments that require WILEY PLUS access will automatically show correct answers after your attempts.

Course Grading:

Homework	Quiz	Exam 1	Exam 2	Final Exam	Bonus: Exit Ticket
20%	10%	20%	20%	30%	3 pts

Class Policies:

1. **Homework.** We will have six homework assignments due at 11:59 PM on Wednesdays (see Canvas). Homework must be submitted through Wiley Plus Assignment or on UW Canvas. You are allowed, in fact, encouraged to discuss homework problems in groups. However, homework solutions must be written independently and you *should not* share your solution with another person. When in doubt, please contact the instructor for help. Each homework assignment is worth 4% of your grade, and the lowest score will be dropped.

2. **Exams.** There will be three closed-book exams (two midterms and one final) held during regular scheduled class time (8:30-10:10AM). They are based entirely on topics covered in class or homework. You are allowed **ONE** 8.5x11 inches (letter size) cheat sheet (front and back) to exams with any notes you want. Final exam **WILL BE CUMULATIVE**, so you will be allowed **TWO** cheat sheets (8.5x11 inches, front and back). You can use a graphing calculator in the exams, but other electronic devices (cell phone, laptop, iPad etc.) are NOT allowed during the exams. Below are exam dates:

Exam	Exam 1	Exam 2	Final Exam	**Location**
Date	July 21	August 6	August 20	IEB G109

It is your responsibility to make sure that you will be available to take the exams at the said time. No exceptions will be made, and no make-up exams will be offered. If you miss Exam 1 or Exam 2, the missed exam score will be replaced by your final exam score. The final exam cannot be missed for any excuse. **Do NOT be late for the exam, you will not be given extra time.**

3. **Quick Quizzes.** There will be 6 short (10-minute) quizzes given at the end of class on selected days which will be announced one class meeting in advance. They are **OPEN NOTES**. You are allowed **ONLY ONE** quiz drop, and if you miss a quiz, it will count as your drop. Even if you are absent from class, please make sure to take the quiz between 10:00 and 10:30am on the announced days. There will be **NO MAKE-UPS** for missed quizzes.

4. **Bonus: Exit Tickets.** In each regular week, except during exam weeks, there will be an optional exit ticket worth 0.5 bonus points (6 in total, for up to 3 bonus points). Exit tickets will be available on Tuesday and must be submitted by midnight on Thursday of the same week to receive bonus points.

5. **Late submission.** Late submissions *will be penalized* according to the following rules:

   - Submissions up to 24 hours late will receive a 20% penalty.
   - Submissions 24-48 hours late will receive a 50% penalty.
   - Submissions more than 48 hours late **WILL NOT BE ACCEPTED**.

6. **Regrades.** Regrades requests for any grade materials must be submitted as a written explanation via email to the instructor/TAs within 5 working days after the date the work is returned. Regrades will only be discussed after submitting the work in this manner. Regrades can result in a score lower than the original score.

7. **Other policies.**

   - The syllabus is an arrangement of the course activities. The instructor reserves the right to make changes to the syllabus during the course. Any necessary changes will be announced in class and posted on the website.
   - Announcements: Students are expected to receive course-related announcements in class or through Canvas (please set it up to receive emails timely).
   - Fairness: The instructor reserves the right to refuse any request, to ensure the fairness towards all students in the class.

Religious Accommodations: Washington state law requires UW to develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. Teaching faculty across the University must make accommodations for students observing religious holidays or traditions and must include information in every course syllabus alerting students of this option. Accommodations must be requested within the first two weeks of this course using the Religious

Accommodations Request form. The UW's policy, including more information about how to request an accommodation, is available at Religious Accommodations Policy.

Disability Accommodations: If you have not yet established services through Disability Resrouces for Students (DRS), but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention- related, learning, vision, hearing, physical or health impacts), you are welcome to contact DRS at 206- 543-8924 or uwdrs@uw.edu or disability.uw.edu. DRS offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and DRS. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law.

Academic Misconduct Statement: Engineering is a profession demanding a high level of personal honesty, integrity and responsibility. Therefore, it is essential that engineering students, in fulfillment of their academic requirements and in preparation to enter the engineering profession, shall adhere to the University of Washington's Student Code of Conduct. Any student in this course suspected of academic misconduct (e.g., cheating, plagiarism, or falsification) will be reported to the College of Engineering Dean's Office and the University's Office of Community Standards and Student conduct. See CoE website for more detailed explanation of the academic misconduct adjudication process.

Mental Health & Well-Being Resources: The following well-being & mental health resources are available to you on campus:

- Let's Talk connects you with support from a counselor without an appointment via drop-in hours.
- The Counseling Center provides you with personal counseling, assessment, referral, and crisis intervention services (206-543-1240).
- UW LiveWell provides you with support and case consultation if you are experiencing personal hardship, including academic hardship as the result of extenuating life circumstances (206-543-6085).
- Husky Health & Well-Being provides you with a central online resource for access to health and wellness services across the campus.
- Academic Advising can help if you are experiencing challenges navigating academic commitments.
- SafeCampus is here for you to anonymously discuss mental, emotional, or physical safety and well-being concerns for yourself or others (206-685-7233), no matter where you work or study. SafeCampus's team of caring professionals will provide individualized support, while discussing short- and long-term solutions and connecting you with additional resources when requested.

Title IX at UW: UW, through numerous policies, prohibits sex- and gender-based violence and harassment, and we expect students, faculty, and staff to act professionally and respectfully in all work, learning, and research environments. For support, resources, and reporting options related to sex- and gender-based violence or harassment, visit UW Title IX, specifically the Rights and Resources for UW Students guide.

If you choose to disclose information to me about sex- or gender-based violence or harassment, I will connect you (or the person who experienced the conduct) with resources and individuals who can best provide support and options. You can also access those resources directly: **1) Confidential:** Confidential Advocacy will not share information with others unless given express permission by the person who has experienced the harm or when required by law. **2) Private and anonymous:** SafeCampus provides consultation and support and can connect you with additional resources if you want them. You can contact SafeCampus anonymously or share limited information when you call.

Please note that some senior leaders and other specified employees have been identified as "Officials Required to Report." If an Official Required to Report learns of possible sex- or gender-based violence or harassment, they are required to call SafeCampus and report all the details they have in order to ensure that the person who experienced harm is offered support and reporting options.

Responsible Use of AI: I encourage the use of AI tools for learning, but you should use it responsibly. Please check the UW AI General Use Guidelines and AI Tools and Academic Integrity pages, and follow the guidelines in using these tools. The use of AI is **PROHIBITED** for any use for any purpose in any exam or quiz situation or for homework submissions. All submitted work should be your own work.

Tentative Class Schedule:

Week	Date	Topic	Notes
1	06/23	Introduction & Basics of Classical Probability	Ch1, Ch2.1, Ch2.2
	06/25	Probability Theory	Ch2.3, Ch2.4, Ch2.5, Ch2.6
2	06/30	Independence, Bayes Theorem	Ch2.5, Ch2.6, Ch2.7, Ch2.8
	07/02	Discrete RVs & Distributions	Ch3.1-3.4, Ch3.5, 3.6, 3.8
3	07/07	Continuous RVs & Distributions	Ch 4.1-4.5
	07/09	Continuous RVs & Distributions (*cont.*)	Ch4.6-4.7, Ch5
4	07/14	Joint Probability, Covariance and Correlation	Ch5.1-5.3
	07/16	Descriptive Statistics & Exploratory Data Analysis	Ch5.4, Ch6.1, Ch6.3-6.7
5	07/21	Exam 1	In Person at IEB G1099
	07/23	Central Limit Theorem, Law of Large Numbers	Ch7.2 & Lecture Notes (J. Orloff & P. Neal)
6	07/28	Point Estimation	Ch7.1, Ch7.3-7.4
	07/30	Confidence Intervals	Ch8.1-8.5
7	08/04	Hypothesis Testing	Ch9.1-9.6, Ch10.1-10.2, Ch10.4-10.7
	08/06	Exam 2	In Person at IEB G109
8	08/11	Linear Regression	Ch11.1-11.4, Ch11.10, Ch12.1-12.2
	08/13	Statistical Quality Control	Ch15.1-15.4, Ch15.10
9	08/18	Final Exam Review	
	08/20	Final Exam (8:30 – 10:10 AM, Thursday)	In Person at IEB G109