

Spring 2020
Probability and Statistics (STAT 352) 3 credits
Mackay Science (MS) Room 215
Tuesday + Thursday, 10:30 – 11:45AM

Instructor: Ilya Zaliapin **Office:** Davidson Math & Science Center (DMSC), Room 221
Office hours: TR 9:30-10:20AM + by appointment
Phone: (775) 784-6077 **E-mail:** zal@unr.edu

The course website is maintained at WebCampus (<https://wcl.unr.edu/>)

Intro: This course is an introduction to the theory and practice of probability and statistics. The emphasis is on the probability/statistics language, essential ideas, and concepts. We will discuss the foundations of probability theory, basic descriptive statistics, graphical representation of data, point and interval estimation, hypothesis testing, correlation, and regression analyses. Working with a statistical package MINITAB will give you an opportunity to see how the concepts discussed in class are applied to the real data sets.

Catalog description:

Probability experiments; sample spaces, conditional probabilities, random variables, mathematical expectation, variance, Central Limit Theorem, confidence intervals, hypothesis testing and linear regression.

Prerequisites: MATH 182 with a “C-“ or better

Required textbook:

- Navidi, William (2019) *Statistics for Engineers and Scientists*, 5th ed., McGraw Hill.

Tentative list of topics:

- Probability experiments
- Random events, sample spaces
- Random variables, discrete and continuous distributions
- Quantitative measures of location and variability
- Exploratory data analysis, statistical plots
- Point and interval estimation
- Hypothesis testing
- Correlation analysis, Linear regression

Student Learning Outcomes: Students will be able to

- Perform basic statistical analysis of a given data set, including summary statistics and plots, point estimation, confidence interval computation, and hypothesis testing.
- Perform basic probability analyses using conditional probabilities, Bayes theorem, and Central Limit Theorem in a variety of practical situations.
- Construct and estimate models using correlation and linear regression techniques.
- Perform statistical analyses using a professional software package and prepare illustrated technical reports.

Required statistical package:

- MINITAB – available free of charge in the Math Center (Pennington Student Achievement Center, room 300) <http://www.unr.edu/math-center> or via the UNR Remote Services (formerly Citrix Server) <https://remote.unr.edu>. You also

can install it on your computer for \$30 per 6 month from www.minitab.com. The package is an integral part of the course and will be required for homeworks.

Required scientific calculator:

- A calculator that will add, subtract, multiply, divide, compute factorials, and raise numbers to powers is required for the course. You **do not** need built-in statistical functions.

Grading: Your letter grade is determined by the score accumulated during semester:

Letter	A	A-	B+	B	B-	C+	C	D+	D	F
Min. Score	93%	90%	87%	83%	80%	77%	70%	67%	60%	0%

How to calculate your score:

- Before Wednesday, May 6, 2020 the score is calculated as follows:

HW	20%
Minitab	15%
Midterms	50% (=2x25%)
Attendance	10%
Quizzes	5%
Extra Points	5%

If on Wednesday, May 6, 2020 your score is 83% or higher (*i.e.*, your letter grade is B or higher) you may skip the final. In this case, your letter grade for the course will be determined by your score as of May 6, 2020.

If on Wednesday, May 6, 2020 your score is 83% or higher, you have a right to attend the final. In this case, your score will be calculated **after the final** as described below and **only** that new score will be used to determine your course letter grade. You **may not** go to final and then request to use your pre-final score.

If on Wednesday, May 6, 2020 your score is below 83%, you **must** attend the final.

- After the final, the score is calculated as follows (lower weight for HWs and midterms, final is added):

HW	10%
Minitab	15%
Midterms	40% (=2x20%)
Final	20%
Attendance	10%
Quizzes	5%
Extra Points	5%

Midterms: There will be two midterms scheduled on Thursday, March 12 and Thursday, April 30. There will be a review session on Tuesday before each midterm.

Final exam (comprehensive): Tuesday, May 12, 9:50 – 11:50 AM.

Exam policy (for midterms and final): Closed books, closed notes. Calculator is required on exams. There will be **no make-ups** for exams, except legitimate medical reasons. In case of participating in University-related activities or in any other special circumstances, contact instructor **in advance**. If you miss a midterm for a legitimate reason, your final will cost 40%. If you miss both midterms for a legitimate reason, your final will cost 60%.

Home works that consist of solving textbook problems will be given after each class. Home works are to be done with pen and paper (e.g., no online system will be used for home works). Home works are graded weekly. You receive a single score for the weekly home work set.

Homework policies: The two sets (Tuesday + Thursday) of home work problems assigned during a given week are due on Tuesday of the next week, by 11:45AM (by the end of Tuesday class). The two sets must be stapled together. Each set must begin on a separate page that will indicate your name, class (STAT 352), and problem numbers as in the textbook. Please be advised that accurate grading cannot be guaranteed if these rules are not followed. If you need to miss a lecture on Tuesday, you can turn your HW earlier to the instructor, or to the Mathematics and Statistics office (DMSC, room 314). E-mails with HW reports cannot be accepted. Late HWs can be accepted under special circumstances (please discuss this with instructor) and given a maximum of half credit (50%).

Minitab computer assignments will be given and graded separately from home works. There will be approximately four Minitab assignments. You will be asked to solve problems that involve statistical computing and prepare an illustrated report. To get a full Minitab credit, the assignments are due by 11:45AM (by the end of Tuesday class). A late assignment results in zero score. E-mails with Minitab reports cannot be accepted.

You are encouraged to discuss HW and Minitab assignments between each other and with instructor during office hours; but your work must be written individually.

Quizzes: There will be weekly quizzes given in the discussion section on Friday. The quizzes contribute 5% to your overall performance.

Extra Points will be given for extra problems announced during the lectures.

Re-grading: If you find that your grade for exam, HW, Minitab assignment, or quiz is incorrect, contact instructor in person with a rational justification. Have the assignment that is being discussed with you. All re-grading requests must be submitted to instructor within one week after a grade is announced; late requests will not be granted. The final decision about the new grade is made by the instructor.

Lecture attendance is strongly recommended. It is your responsibility to know the material covered and announcements made in class.

Recitation sections will be held on Fridays (check your discussion section schedule). The goal of recitation sections is to discuss the problem-solving techniques, answer questions about the HW, and provide an opportunity for more personal discussion of the class topics.

Recitation attendance is required. You earn 1 point by attending each recitation section (10 points maximum). There will be 14 recitation sessions (see class schedule on p. 5); thus, you can miss four recitations without lowering your score.

Course web site will be maintained at WebCampus <http://wcl.unr.edu>. It will show the course progress, homework assignments and important announcements. You are responsible for being familiar with the site content. Also, you are required to check your WebCampus (Canvas) e-mail, which will be used for communication between instructor and students. It will be **not possible** to request instructor to contact you at an alternative e-mail (you can use mail forwarding in WebCampus to receive mails via alternative mail services.) Only the grades posted at WebCampus are used for calculating your final score and letter grade. It is your responsibility to contact instructor if you see any discrepancy.

Classroom Policy: Any successful learning experience requires mutual respect on behalf of the student and the instructor. In particular, it is assumed that we are coming to the class for the total duration of a lecture. Should there be a need to come later or leave earlier, choose a seat closest to the door. Switch phones to silent mode. No food or drinks.

Class Absence Policy: It is the personal responsibility of the student to consult with the instructor regarding absence from class. Students are responsible for material covered in class, and it is the student's responsibility to arrange for the completion of all missed classroom work. University-approved extracurricular activities are defined as those sanctioned by a college dean and/or the provost, and may include, but are not limited to, intercollegiate athletics, band, drama, forensics, and recruitment. It is the responsibility of the student to arrange for written notice from the appropriate college dean or the Office of the Provost to their instructor of their participation in official University activities in advance and as soon as the student is aware of the potential need to miss class. In cases of absences due to extended illness, family emergency, bereavement, or other compelling reason, students should notify their instructors as soon as possible and within one week of the start of the absence, and work with them to develop plans, including appropriate deadlines, to make up missed coursework. Faculty have the right to request formal, written documentation in such cases as appropriate. For university policy regarding class absence, see [UAM 3.020](#).

Academic Success Services: Your student fees cover usage of the Math Center (784-4433, <http://www.unr.edu/math-center>), Tutoring Center (784-6801, <http://www.unr.edu/tutoring>), and University Writing Center (784-6030, http://www.unr.edu/writing_center). These centers support your classroom learning; it is your responsibility to take advantage of their services. Keep in mind that seeking help outside of class is the sign of a responsible and successful student.

Academic Dishonesty will not be tolerated and will lead to an F grade. Academic dishonesty is defined as: cheating, plagiarism or otherwise obtaining grades under false pretenses. Plagiarism is defined as submitting the language, ideas, thoughts or work of another as one's own; or assisting in the act of plagiarism by allowing one's work to be used in this fashion. Cheating is defined as (1) obtaining or providing unauthorized information during an examination through verbal, visual or unauthorized use of books, notes, text and other materials; (2) obtaining or providing information concerning all or part of an examination prior to that examination; (3) taking an examination for another student, or arranging for another person to take an exam in one's place; (4) altering or changing test answers after submittal for grading, grades after grades have been awarded, or other academic records once these are official. For more information see <http://www.unr.edu/stsv/acdispol.html>

Class recording policy: Surreptitious or covert video-taping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may have been given permission to record class lectures and discussions. Therefore, students should understand that their comments during class may be recorded.

Disability Statement: Any student with a disability needing academic adjustments or accommodations is requested to speak with the [Disability Resource Center](#) (Thompson Building, Suite 101) as soon as possible to arrange for appropriate accommodations.

The University of Nevada, Reno is committed to providing a safe learning and work environment for all. If you believe you have experienced discrimination, sexual harassment, sexual assault, domestic/dating violence, or stalking, whether on or off campus, or need information related to immigration concerns, please contact the University's Equal Opportunity & Title IX office at 775-784-1547. Resources and interim measures are available to assist you. For more information, please visit: <https://www.unr.edu/equal-opportunity-title-ix>

Tentative schedule (may vary as course progresses)

Week	Tuesdays		Thursdays		Fridays	
	Date	Topic	Date	Topic	Date	
1	Jan 21	Intro	Jan 23	1.1, 1.3	Jan 24	Quiz 1
2	Jan 28	1.2-1.3	Jan 30	2.1	Jan 31	Quiz 2
3	Feb 4	2.3	Feb 6	2.3	Feb 7	Quiz 3
4	Feb 11	2.4	Feb 13	2.4	Feb 14	Quiz 4
5	Feb 18	2.5	Feb 20	4.1-4.2	Feb 21	Quiz 5
6	Feb 25	4.2-4.3	Feb 27	4.5	Feb 28	Quiz 6
7	Mar 3	4.5,4.10	Mar 5	4.11	Mar 6	Quiz 7
8	Mar 10	Review	Mar 12	Midterm 1	Mar 13	Review
9	March 14 -22 * Spring Break					
10	Mar 24	4.12	Mar 26	5.1	Mar 27	Quiz 8
11	Mar 31	5.2	Apr 2	5.3	Apr 3	Quiz 9
12	Apr 7	5.9	Apr 9	6.1-6.2	Apr 10	Quiz 10
13	Apr 14	6.3	Apr 16	6.12-6.13	Apr 17	Quiz 11
14	Apr 21	7.1-7.2	Apr 23	7.2	Apr 24	Quiz 12
15	Apr 28	Review	Apr 30	Midterm 2	May 1	Review
16	May 5	Final Review				
17	* FINAL * Tuesday, May 12 * 9:50 - 11:50AM					