



SAINT LOUIS UNIVERSITY
MADRID

MATH/STAT-3850 Foundations of Statistical Analysis
Spring 2018

Class Days and Time: MWF, 9:00-9:50 pm

Classroom: PRH 5

Prerequisite(s): C- or better in Math 1520 Calculus II

Credit(s): 3 credits

Instructor: María Félix Soler

Instructor's Email: maria.felix@slu.edu

Instructor's Campus Phone: 91 554 58 58, ext. 000

Office: PAH Science Office

Office Hours: MWF 12:00-12:50 and by appointment.

Course Description: This course is a calculus based introduction to probability and statistics. We will cover applications and theory of probability distributions, random variables, expectation, independence, confidence intervals, hypothesis testing, regression and ANOVA.

Student Learning Outcomes:

By the end of the term, successful students should be able to do the following:

1. Compute probabilities of an event, given a description of the experiment that defines the event.
2. Use conditional probabilities; in particular, Bayes Rule and the Law of Total Probability.
3. Recognize the type of random variable that an experiment describes.
4. Determine whether random variables are independent, and make computations based on independence.
5. Compute expected values of random variables, from the definition and from formulas.
6. Find confidence intervals for means and proportions.
7. Perform hypothesis testing of means and proportions.
8. Perform and interpret single and multiple regression using R.
9. Perform and interpret ANOVA using R.
10. Write R code which simulates an experiment in order to compute a probability.

Saint Louis University - Madrid Campus is committed to excellent and innovative educational practices. In order to maintain quality academic offerings and to conform to relevant accreditation requirements, the Campus regularly assesses its teaching, services, and programs for evidence of student learning outcomes achievement. For this purpose anonymized representative examples of student work from all courses and programs is kept on file, such as assignments, papers, exams, portfolios, and results from student surveys, focus groups, and reflective exercises. *Thus, copies of student work for this course, including written assignments, in-class exercises, and exams may be kept on file for institutional research, assessment and accreditation purposes.* If students prefer that Saint Louis University - Madrid Campus does not keep their work on file, they need to communicate their decision in writing to the professor.

Text Book

Speegle, Foundations of Statistics with R.

We will be using the free, open source statistical software package RStudio in this course. RStudio is a modern graphical front-end to the R computer language. You are encouraged to install RStudio and R on your own computer. Software downloads, manuals, and help are available at <https://www.r-project.org>.

Attendance Policy: All students are expected to attend all classes. It is assumed that any information given out during class has been delivered to all students. Repeated lateness will not be tolerated. So, please come to class on time and do not leave early. Anything else is rude and disruptive.

Required work

Homework covering the concepts taught in class will be posted in Blackboard regularly throughout the semester. A date and time for closing each assignment will be announced in class and appear on each assignment. **No late assignments will be accepted.** You may discuss homework orally with other students, but each student must submit his/her assignment independently.

3 in-class tests and one comprehensive final will be given.

Grading system

The final grade will be obtained using the following percentages:

- 15% homework
- 60% in class exams.
- 25% final exam.

Make up tests

No makeup exams will be given. If a student misses an exam due to a university approved absence, then the grade on the final exam will be used for the student's exam grade. Exams that are missed illegitimately result in a score of F. Missing more than one exam results in an F grade for the entire course.

Excused Absences:

Legitimate conflicts and excuses require written documentation and are limited to death or near death instances in the immediate family, a student's illness that requires immediate doctor's care (with the corresponding doctor's note), a University sponsored event (not club sports) and regularly scheduled religious obligations. Excuses that will NOT be considered include personal travel arrangements, non-University sponsored events, a conflicting appointment, or an illness that does not prevent you from coming to the exam.

E-mail: Campus and course announcements will often be handled by e-mail. Students should check their "@slu.edu" e-mail regularly.

Course calendar: <https://www.slu.edu/madrid/academics/registrar/academic-calendar/spring-2018>

- **January:**
 - 10th Wed.: First day of classes.
 - 21st Sun.: Last day to DROP without a grade of "W" or to add a class.
 - 26th Fri.: No classes.
- **February:**
 - 14th Wed.: First Exam
 - 14th Wed.: Registration Summer begins
 - 22nd-23rd Thur.-Fri.: Winter break.
- **March:**
 - 9th Fri.: Last day to drop and receive a Grade of W.
 - 14th Wed.: Second Exam
 - 26th – 30th: Semana Santa-Campus closed.
- **April**
 - 4th Wed.: Registration for Fall 2018 begins.
 - 23rd Mon.: Third Exam
- **May:**
 - 1st and 2nd: Holidays – Campus closed.
 - 3rd Thur.: Last Day of Classes
 - 4th Fri. Final Exam (8:30 – 11:30)

	4 May (Fr)	7 May (Mn)	8 May (Tu)	9 May (Wd)	10 May (Th)
08:30-11:30	Mn classes that meet at 9:00 & 9:30	Mn classes that meet at 10:00	Mn classes that meet at 11:00 & 11:30	Tu classes that meet at 9:30	Tu classes that meet at 8:00
12:00-15:00	Tu classes that meet at 11:00	Mn classes that meet at 13:00	Tu classes that meet at 14:30	Mn classes that meet at 12:00 & 12:30	Tu classes that meet at 12:30
15:30-18:30	Mn classes that meet at 14:30	Tu classes that meet at 17:00 & 17:30	Mn classes that meet at 16:00	Tu classes that meet at 16:00	Mn classes that meet at 17:30
19:00-22:00	---	---	Mn classes that meet at 18:30 & 19:00	Tu classes that meet at 19:00	---

University Statement on Academic Integrity: Academic integrity is honest, truthful and responsible conduct in all academic endeavors. The mission of Saint Louis University is "the pursuit of truth for the greater glory of God and for the service of humanity." Accordingly, all acts of falsehood demean and compromise the corporate endeavors of teaching, research, health care and community service via which SLU embodies its mission. The University strives to prepare students for lives of personal and professional integrity, and therefore regards all breaches of academic integrity as matters of serious concern.

The governing University-level Academic Integrity Policy can be accessed on the Provost's Office [website](#). Additionally, SLU-Madrid has posted its academic integrity policy online: <http://www.slu.edu/madrid/academics>. As a member of the University community, you are expected to know and abide by these policies, which detail definitions of violations, processes for reporting violations, sanctions and appeals.

The professor will review these matters during the first weeks of the term. Please direct questions about any facet of academic integrity to your faculty, the chair of the department of your academic program or the Academic Dean of the Madrid Campus.

University Title IX Statement: Saint Louis University and its faculty are committed to supporting our students and seeking an environment that is free of bias, discrimination, and harassment. If you have encountered any form of sexual misconduct (e.g. sexual assault, sexual harassment, stalking, domestic or dating violence), we encourage you to report this to the University. If you speak with a faculty member about an incident of misconduct, that faculty member must notify SLU's Title IX deputy coordinator, Marta Maruri, whose office is located on the ground floor of Padre Rubio Hall, Avenida del Valle, 28 (mmaruri@slu.edu; 915-54-5858, ext. 213) and share the basic fact of your experience with her. The Title IX deputy coordinator will then be available to assist you in understanding all of your options and in connecting you with all possible resources on and off campus.

If you wish to speak with a confidential source, you may contact the counselors at the SLU-Madrid's Counseling Services on the third floor of San Ignacio Hall (counselingcenter-madrid@slu.edu; 915-54-5858, ext. 230) or Sinews Multiple therapy Institute, the off-campus provider of counseling services for SLU-Madrid (www.sinews.es; 917-00-1979). To view SLU-Madrid's sexual misconduct policy and for resources, please visit the following web address: <http://www.slu.edu/Documents/Madrid/campus-life/SLUMadridSexualMisconductPolicy.pdf>.

Students with Special Needs: In recognition that people learn in a variety of ways and that learning is influenced by multiple factors (e.g., prior experience, study skills, learning disability), resources to support student success are available on campus. Students who think they might benefit from these resources can find out more about:

- Course-level support (e.g., faculty member, departmental resources, etc.) by asking your course instructor.
- University-level support (e.g., tutoring/writing services, Disability Services) by visiting the Academic Dean's Office (San Ignacio Hall) or by going to <http://www.slu.edu/madrid/learning-resources>.

Students with a documented disability who wish to request academic accommodations must contact Disability Services to discuss accommodation requests and eligibility requirements. Once successfully registered, the student also must notify the course instructor that they wish to access accommodations in the course. Please contact Disability Services at disabilityservices-madrid@slu.edu or +915 54 58 58, ext. 230 for an appointment. Confidentiality will be observed in all inquiries. Once approved, information about the student's eligibility for academic accommodations will be shared with course instructors via email from Disability Services. For more information about academic accommodations, see "Student Resources" on the SLU-Madrid webpage.

Note: Students who do not have a documented disability but who think they may have one are encouraged to contact Disability Services.