Syllabus
Math/Stat 3850 Foundations of Statistical Analysis
Spring 2017

Course
MATH/STAT 3850 Section 3 meets MWF 3:10-4:00 in RH 323
http://math.slu.edu/~clair/stat3850

Instructor
Dr. Bryan Clair
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Ritter Hall 109, 977-3043

Office Hours
M2:10-3, W 10-11, Th 11-12, or by appointment.
Stop by my office anytime, and if I’m around I can usually help you.

Texts
We will be using a number of electronic resources, rather than a traditional textbook. The main text is Speegle, Foundations of Statistics with R, which is linked from our course web page.

Technology
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.

Homework
Written homework will be due weekly, usually on Fridays. This will usually be a combination of written work and R computations.
You will need to print results of R computations, but are welcome to write other solutions by hand. I do not accept electronically submitted homework. Your work should be neat and legible, with plenty of blank space on your pages so I have room to write comments. Staple your homework!
I encourage you to work together on homework, but write up results separately, and write your own R programs, even if you are helping each other.
I grade homework on a 10 point scale, though you cannot get less than 6 for a good faith effort handed in on time:
10 All concepts well understood, at most a few minor mistakes.
9 Most important concepts understood.
8 Some conceptual issues. Important problems incorrect or missing.
7 Lack of understanding of some key points. Many problems incorrect or missing.
6 Serious difficulty understanding the material.
5 Late
Late written homework is always accepted for half credit, but I will not write comments.

Exams
I give makeup exams only for severe and documented reasons.

Exam 1 Monday, February 20
Exam 2 Wednesday, April 5
Final Exam Friday, May 12, 2:00-3:50

There will also be a few short take-home quizzes. There will be no makeup quizzes.
Grading
Grading is on a straight scale (uncurved), with 90%, 80%, 70%, 60% guaranteeing A, B, C, D respectively. Grading is weighted as follows:

Homework: 30%
Quizzes: 10%
Exam 1: 15%
Exam 2: 15%
Final Exam: 30%

Course Objectives
At the completion of this course, students will be able to:

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.

Honesty
Students are expected to be honest in their academic work, as per the Honesty Policy of the College of Arts & Sciences, available on the internet at http://www.slu.edu/college-of-arts-and-sciences-home/undergraduate-education/academic-honesty
You are allowed to use any and all outside resources to help you complete your homework. Students who work together must write up results separately.
For exams and quizzes, no notes or outside help is allowed. In cases when two or more students collaborate on an exam, all will be subject to penalties.

Disabilities
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 Student Success Center (BSC 331) or by going to http://www.slu.edu/success. Students who believe that, due to a disability, they could benefit from academic accommodations are encouraged to contact Disability Services at 314-977-8885 or visit the Student Success Center. Confidentiality will be observed in all inquiries. Course instructors support student accommodation requests when an approved letter from Disability Services has been received and when students discuss these accommodations with the instructor after receipt of the approved letter.