

# STA 3024 Introduction to Statistics 2 Spring 2018

Section 7459 MWF 8<sup>th</sup> period, 3:00–3:50pm

**Instructor** Deborah Burr, 116C Griffin-Floyd Hall; Office Hours: M 7<sup>th</sup> period (1:55–2:35pm) WF 4<sup>th</sup> period (10:40–11:30am), Email: [burr@stat.ufl.edu](mailto:burr@stat.ufl.edu) (put “3024” in the subject line); Phone: 273-2973 (do not leave a message).

**Teaching Assistants** Eleni Dilma, FLO 234, [edilma@ufl.edu](mailto:edilma@ufl.edu), T 11:00am–1:00pm; Wei Hsieh, FLO 234, [hsiehwei@ufl.edu](mailto:hsiehwei@ufl.edu), Th 11:00am–1:00pm.

## Required Materials

**Textbook** Agresti, Franklin, and Klingenberg, *Statistics, The Art and Science of Learning from Data* 4<sup>th</sup> ed. (3<sup>rd</sup> ed. is okay), Prentice Hall.

**Calculator** You need a scientific calculator, one which will compute at least the mean and standard deviation automatically. You will use it for tests. A graphing calculator is allowed.

**Statistical Software** We will use the free statistical computing language R; download it to your laptop in the first week of the semester from <http://www.r-project.org>. Also download Rstudio from <http://www.rstudio.com> (Desktop free license).

**Prerequisite** STA 2023 or equivalent.

**Course Description** After a review of essential statistics concepts, this course begins with the topic of inference for simple linear regression. The main course topics are multiple linear regression and the analysis of variance. A short introduction to analysis of data in contingency tables will also be given. Assumptions of procedures are stressed, and alternative nonparametric procedures are discussed. Some mathematics is required (at the level of high-school algebra); examples are used to explain all methods and concepts. The R statistical language will be introduced and used throughout the course.

## Main Course Objectives (short list)

- 1 Acquire more experience and understanding of concepts of descriptive and inferential statistics, such as the histogram, normal distribution,  $z$ -scores, basic probability rules, sampling distribution of the mean, confidence intervals and hypothesis tests. (This will be a review.)
- 2 Be able to carry out and interpret simple linear regression analysis.
- 3 Be able to carry out and interpret several types of multiple regression analysis, including model evaluation and discussion of pitfalls.
- 4 Be able to carry out and interpret one-way analysis of variance including appropriate methods of multiple comparisons.
- 5 Be able to carry out and interpret two-way factorial analysis of variance with and without interaction; know what interaction is.
- 6 Become familiar with uses of R statistical software; be able to run R code and interpret output (but not write R code).

**Grading** Your final course grade will depend on your course score based on the following four components with their respective weights:

Homework/Quizzes:		20%
Exam 1:	Wednesday February 14 (8:20pm, location TBA)	25%
Exam 2:	Friday March 23 (8:20pm, location TBA)	27%
Exam 3:	Wednesday May 2 (3:00pm–5:00pm)	28%

The assignment of letter grades will be determined as follows (cutoffs will be no stricter than indicated, and may be relaxed): A (93–100); A<sup>-</sup> (90–92); B<sup>+</sup> (87–89); B (80–86); B<sup>-</sup> (77–79); C<sup>+</sup> (74–76); C (67–73); D 50–66; E < 50

**Homework/Quizzes** There will be approximately eight homeworks to be submitted on Canvas. The homeworks will be posted at least one week before the due date. Either the homework, or an in-class quiz based on the homework, will be graded and counted toward your homework score. You need to earn a total of 200 points for a perfect homework score; there will be at least 220 points possible. (If you earn a total score over 200, this will not count extra.) Some problems will require use of R; an R tutorial will be given in class, and all R code will be provided for the assigned problems.

**Exams** There will be three exams. The exam questions will be mostly multiple-choice with scantron. There will be one or two written questions on each exam, in addition to multiple-choice items. Some problems will contain computer (R) output, which the student will be asked to interpret.

### Course Policies

**Communication** Use email only for administrative matters. Email me only at the UF email address [burr@stat.ufl.edu](mailto:burr@stat.ufl.edu), and put the course number “3024” in the subject line; do not use Canvas email. See me or a TA in person for content questions. It’s ideal to ask questions right after class.

**Homework/Quizzes** You are allowed to get help with homework problems, but your final write-up must be your own. Homework must be submitted on Canvas at the beginning of the lecture on the due date. Late homework will not be accepted. Quizzes will be announced in advance; notes are not allowed, and all work is to be entirely your own. Refer to the UF Honor Code.

**Exams** The exams are closed-book, closed-notes. You may bring one  $8.5 \times 11$  sheet of notes to each exam. Bring a picture ID, your calculator, pencils and erasers. The exams are unit tests, not cumulative. Make-up exams must be approved before the time of the exam and will be given only in case of medical or family emergencies (which must be appropriately documented). For cases of illness, a doctor’s signed note will be required. All work must be entirely your own.

**Disabilities** Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

**Other Information** This is a three-credit course which counts towards the General Education requirement and towards the Gordon Rule requirement in mathematics, if you earn a grade of C or better.