

STA 4712 Introduction to Survival Analysis Spring 2018

Section 17A7 FLO 100 MWF 3rd period, 9:35–10:25am

Instructor Deborah Burr, 116C Griffin-Floyd Hall; Office Hours: M 7th period (1:55–2:35pm) WF 4th period (10:40–11:30am), Email: burr@stat.ufl.edu (put “4712” in the subject line); Phone: 273-2973 (do not leave a message).

Teaching Assistant Dmitrii Nikiforov, FLO 209, dmitriinikiforov@ufl.edu, Wed 2–4pm

Required Materials

Textbook David Collett, *Modelling Survival Data in Medical Research*, 3rd ed.

E-book on R Peter Dalgaard, *Introductory Statistics with R*, 2nd ed. Available as e-book at UF library.

Scientific calculator You need one which will compute 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 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 4210 Regression Analysis, or the equivalent.

Course Description This course discusses “time to event” data, where the event can be response to treatment, relapse of disease, or death. Often we wish to quantify the relationship between the time to event and prognostic factors such as mode of therapy, age of patient, and severity of disease. This course will cover inference for a single population, methods for comparison of two or more populations, and methods for doing regression analysis. Procedures will include the Kaplan-Meier estimator, the log-rank test, and Cox proportional hazards regression. All these procedures handle the common case of censored data, where the information on some individuals is incomplete in the sense that the event had not yet occurred at the termination date of the study. Some basic theoretical material will be covered in order to show how methods of mathematical statistics are adapted to handle censoring. Computation on the computer is crucial for implementing survival analysis methods. Computations will be carried out in the R statistical programming language.

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

Homework:		20%
Exam 1:	Monday February 12 (8:20pm, location TBA)	25%
Exam 2:	Wednesday March 21 (8:20pm, location TBA)	27%
Exam 3:	Tuesday April 24 (8:20pm, location TBA)	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⁻ 90–92; B⁺ 87–89; B 80–86; B⁻ 77–79; C⁺ 74–76; C 67–73; D 50–66; E < 50

The calculation of your final average will be done outside of Canvas; the formula used by Canvas will not necessarily produce the final average according to the course grading scheme. Information on current UF policy for assigning grade points may be found at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

Homework There will be about eight homeworks to be submitted on Canvas. Some but not all of the problems on each homework will be graded. A crucial part of homework assignments is to show your work and explain your reasoning. It is not sufficient to simply give a numerical or one-word answer.

Some homeworks will require you to use R and to produce a written report of a data analysis. 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.)

Exams There will be three exams. On each exam, there will be some short-answer questions, both multiple-choice and fill-in-the-blank types. Other questions will require a written response; for these questions, it is not sufficient to simply give a numerical or one-word answer. There will be short calculations required; you need a calculator for the exams. On each exam, there will be at least one question which describes a censored data scenario, gives R output from the analysis, and asks you to interpret the output. The exams are closed-book, closed-notes. You may bring one 8.5×11 sheet of notes to each exam. Bring a picture ID, your calculator, pencils and erasers.

Course Policies

Use email only for administrative matters. Email me at the UF email address `burr@stat.ufl.edu`, and put the course number 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.

You are allowed to get help with homework problems, but your final write-up must be your own. Homework must be submitted on Canvas by the posted due date and time. Late homework will not be accepted.

Makeup exams must be approved before the time of the exam and will generally be given only in case of medical or family emergencies, which must be appropriately documented. More detailed policy for granting a makeup exam may be found in the undergraduate catalog under Attendance Policies (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>).

For cases of illness, a doctor's signed note will be required.

All work on exams must be entirely your own. Refer to the UF Honor Code at <http://www.dso.ufl.edu/sccr/process/student-conduct-honorcode/>.

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, 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.