

## Syllabus

### General Information

- Instructor: Yili Hong, Professor of Statistics
- Office: 213 Hutcheson Hall; Email: [yilihong@vt.edu](mailto:yilihong@vt.edu)
- Course modality: Face-to-Face Instruction
- Class time and place: TR 12:30 pm-1:45 pm; Hutcheson 207
- Office hours: TR 2:00 pm-3:00 pm, or by appointment.  
Available in both in office and via zoom.  
Zoom link for office hours: <https://virginiatech.zoom.us/j/88288072335>

### Resources

- Textbook: John D. Kalbfleisch and Ross L. Prentice (2002). *The Statistical Analysis of Failure Time Data*, (2nd Edition), Wiley. *Required*.
- Computing software package: R, available at <http://www.r-project.org/>
- Course webpage: <https://canvas.vt.edu>
- Google Drive link for sharing large files (e.g., videos):

<https://drive.google.com/drive/folders/1-qth84qqiwHR-h1mD-HFW9XXr32uiUdq?usp=sharing>

### Description

The objective of this course is to provide a comprehensive introduction to the theory and methods for the analysis of survival data. Time-to-event data are common in biomedical and public health research, as well as in ecology, social science, and industrial research. This course will focus on nonparametric and semiparametric methods. The primary focus will be on theory and methods, although computing and data analysis will also be covered. The illustrative examples will be primarily from biomedical/public health settings. The topics include: Kaplan-Meier estimator, Cox regression, counting process and asymptotic theory, accelerated failure time model, competing risks model, recurrent events model, and Bayesian survival analysis.

### Evaluation

- Letter grade will be given based on homework (30%), one mid-term (20%), and one course project (10% for project proposal, 10% for presentation, and 30% for the final project report).

- Homework: there will be regular homework. All homework should be submitted via Canvas. NO late homework will be accepted.
- Mid-term: take home, scheduled to be on the week of September 21, 2021.
- Project: students are expected to complete a project in which they acquire and analyze a set of time-to-event data, write a report, and give a presentation. Alternatively, students can also choose to review a survival analysis paper with theory emphasis. The final report is due at 3:05 pm, Wednesday, December 15, 2021.

### **Academic Integrity**

Students are expected to abide by Virginia Tech's Community Standard for all work for this course (<http://www.honorsystem.vt.edu/>). Violations of the Standard will result in a failing final grade for this course and will be reported to the Dean of Students for adjudication. Ignorance of what constitutes academic dishonesty is not a justifiable excuse for violations.

### **Special Accommodation**

As supported by Virginia Tech's Principles of Community (<http://www.vt.edu/diversity/principles-of-community.html>), all students will be treated equally. Those with special needs can be accommodated and should refer to the website <http://www.ssd.vt.edu/> for specific questions.