Syllabus

General Information

• Instructor: Yili Hong, PhD
• Office: 213 Hutcheson Hall; Phone: 540-231-9710; Email: yilihong@vt.edu
• Class time and place: TR 11:00am-12:15pm; Smyth 232
• Office hours: Tuesday: 1:30pm-3:00pm, Wednesday: 1:00pm-2:30pm, or by appointment

Resources

• Textbook:
• Computing software packages:
  – SAS
  – JMP
• Course webpage: https://canvas.vt.edu

Description

The objective of this course is to provide a comprehensive introduction to the principles and methods for the analysis of time-to-event 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 cover parametric, nonparametric, and semiparametric methods. As a master-level course, the primary focus will be on methods, data analysis, and interpretation of results. The illustrative examples will be primarily from biomedical/public health, and industrial settings.

Evaluation

• Letter grade will be given based on homework (20%), one mid-term (20%), one course project (30%), and the final exam (30%).
• Homework: There will be 6 homework. Turn them in at the beginning of the class on the date it is due. NO late homework will be accepted.

• Mid-term: close-book, in class, 75-minute exam.

• Final exam: take-home, comprehensive.

• Project: students are expected to complete a project in which they acquire and analyze a set of time-to-event data, write a short report, and give a presentation. Teamwork is encouraged.

Outline

<table>
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<tr>
<th>Topics</th>
<th>Reading</th>
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<tbody>
<tr>
<td>Basic quantities</td>
<td>[KM] Ch 2.1-2.3</td>
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<tr>
<td>Parametric models</td>
<td>[ME] Ch 4.3-4.12</td>
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<td>Censoring and truncation</td>
<td>[KM] Ch 3.1-3.5</td>
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<td>Nonparametric estimation</td>
<td>[KM] Ch 4.1-4.4, 4.6</td>
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<td>Hypothesis testing</td>
<td>[KM] Ch 7.1-7.6, 7.8</td>
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<td>Parametric inference</td>
<td>[ME] Ch 8.1-8.4, Ch 6</td>
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<tr>
<td>Semiparametric regression</td>
<td>[KM] Ch 2.6, Ch 8, Ch 9.3</td>
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*Advanced topics: competing risks, frailty model, diagnostics

*If time permits.

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.