University of Wisconsin-Milwaukee
Joseph J. Zilber College of Public Health

PH 716 — Applied Survival Analysis

Spring 2024

Course Details

Course Number & Title: PH 716 Applied Survival Analysis

Course Schedule: Mon/Wed, 12:45 – 14:00, in Zilber 190.

Prerequisites: Graduate students and [PH711(P), or PH759(P)] and [PH712(P)] or the consent of instructor.

Instructor Contact Information

Instructor: Zhiyang Zhou

Office Location: Zilber 326

Email: zhou67@uwm.edu (merely responding to UWM email addresses)

Homepage: `https://zhiyanggeezhou.github.io/`

Office Hours: TBD

Course Materials and Technology

References: (Recommended but NOT required)
[DM] D. F. Moore. (2016). *Applied Survival Analysis Using R*. Switzerland: Springer. (Accessible via UWM library `http://ebookcentral.proquest.com/lib/uwm/detail.action?docID=4526865`)
[KM] J. P. Klein & M. L. Moeschberger. (2003). *Survival analysis : techniques for censored and truncated data*, 2nd Ed. New York: Springer.

Notes/Slides: To be regularly posted at the instructor's homepage and Canvas.

Software: Data analysis is to be implemented via `R` (`http://cran.r-project.org/`) and `RStudio` (`https://www.rstudio.com/products/rstudio/download/#download`). In addition, the `R Markdown` (`https://rmarkdown.rstudio.com/lesson-1.html`) may be helpful when you are drafting manuscripts containing both numerical outputs and source codes. These three are all freely available for Linux, Macintosh, and Windows. Please download and install them in advance.

Course Description

This course covers basic concepts and techniques in the statistical analysis of survival data. If time permits, all the following topics are going to be covered.

- Basic quantities of survival models (DM Chp. 2);
- Kaplan-Meier and Nelson-Aalen (-Altschuler-Fleming-Harrington) estimators (DM Chp. 3);
- Comparison of survival functions (DM Chp. 4);
- Accelerated failure time model (DM Chp. 10);
- Cox proportional hazards (CPH) model (DM Chp. 5);

- CPH model with time dependent covariates (DM Chp. 8);
- Model selection and interpretation (DM Chp. 6);
- Model diagnostics (DM Chp. 7);
- Competing risks (DM Chp. 9).

Course Assessment

Assignments: There will be four/five assignments in total. You are encouraged to discuss questions (but not answers) with peer students, whereas you must submit the written work individually. Copying, in whole or in part, the work of another will not be tolerated and will result in disciplinary action. Assignment due dates will be specified as soon as questions are released. NO late submission will be accepted. Punctual submissions will be graded and returned within TWO weeks.

Midterm: One midterm exam is scheduled in the week before the spring break. The testing content is defined by lecture notes along with relevant chapters of textbook. There will be no make-up test. If you miss the midterm with a reasonable cause and inform the instructor as soon as possible (ideally within 24 hours), the weight of other assessments may be rescaled accordingly.

Final Project: There is going to be NO final exam. Instead, you will be required to hand in a report after analyzing a recently collected dataset. Detailed guidelines about the final project will be provided in class.

Final Grading: For each attendee of this course, the assignments, midterm and final project contribute to the final percentage score with proportions 30%, 35% and 35%, respectively. Final letter grades will be assigned based on final percentage grades per the following thresholds.

Letter Grade	Percentage Score	Letter Grade	Percentage Score
A	[90, 100]	C	[60, 65)
A-	[85, 90)	C-	[55, 60)
B+	[80, 85)	D+	[50, 55)
B	[75, 80)	D	[45, 50)
B-	[70, 75)	D-	[40, 45)
C+	[65, 70)	F	[0, 40)

Important Dates

The following schedule is subject to change at the discretion of the instructor and/or based on the learning needs of the students.

Date	Information
Jan. 21	Last Day to Withdraw with Full Refund
Jan. 22	First Day of Classes
Feb. 18	Last Day to Drop without W
Feb. 2	Add Deadline
Apr. 7	Drop Deadline
Mar. 17–24	Spring Break
May. 9	Last Day of Classes
May 11, 13–18	Final Exam period

Expectations and Policies

Attendance: Though there is no penalty on absence, it is better to be present in the designated lecture room punctually. Since the course will be delivered without any forms of recording, there is no alternative way of attendance.

Class Communication: Students are required to use UWM email accounts for all communication with the university (including all instructors).

Student Accessibility Services: The Accessibility Resource Center (ARC) offers academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g., mental illness, learning, medical, hearing, injury-related, visual) are invited to contact ARC to arrange a confidential consultation.

Recording of Lectures: No audio or video recording of this material, lectures, or presentations is allowed in any format, openly or surreptitiously, in whole or in part, without permission of the instructor.

Sharing of Course Materials: Course materials are for participants' private study and research, and must not be shared. They must be used in a responsible, efficient, ethical and legal manner for educational purposes only.

Academic Integrity

Academic integrity is taking responsibility for and being honest with your work and respecting the work of others. Since you are a member of the university community, I want you to learn what that responsibility and honesty entails and how to respect the work of others. The Joseph J. Zilber College of Public Health continues to uphold high standards of academic integrity. I count on each of you to do your part. Impersonation, plagiarism, and using unauthorized materials are all very serious offenses. When in doubt, do not hesitate to contact me to discuss what is and what is not allowed. Asking is a sign of integrity instead of a signal that you are planning to cheat.