

Fall 2018
Department of Statistical and Actuarial Sciences

AS4823A/9004A
Survival Analysis

Instructor:	Yang Miao
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Lecture Hours:	Monday 2:30-4:20 pm Wednesday 2:30-3:20 pm
Location:	WSC 240
Office Hours:	TBD
Prerequisites:	A minimum mark of 60% in SS3858. Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.
Description:	Survival models, nonparametric estimation of the survival function, one and two or more sample hypothesis tests, inference for semi-parametric regression models, inference for parametric regression models.
Course Materials:	The course will be based on the lecture slides, which will be posted on OWL. No textbook is needed. Students should check OWL (http://owl.uwo.ca) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class.
Optional Reference	<i>Statistical Models and Methods for Lifetime Data, 2nd Edition, by Jerald F. Lawless, John Wiley & Sons, 2003.</i>
Calculator:	A non-programmable calculator is needed for the course. Actuarial students are encouraged to use SOA-approved model. For details, see https://www.soa.org .

Topics:

The following topics will be discussed:

- Survival analysis concepts: lifetime, survival function, hazard function, density function, mass function, truncation, censoring, and common lifetime distributions.
- Non-parametric models: empirical distribution, Kaplan-Meier estimator, Nelson-Aalen estimator, Greenwood's formula, delta-method, confidence interval, graphical checks, kernel.
- Parametric models: log-location-scale distributions, statistical inferences.
- Regression analysis for parametric models and semi-parametric models: accelerated failure time model, proportional hazards model, goodness-of-fit test, statistical inferences, model selection, log-rank test, Wilcoxon test.
- Applications in R.

Evaluation:

The overall course grade will be calculated as listed below:

Midterm 1 (tentative date: October 1)	20%
Midterm 2 (tentative date: November 5)	20%
Group project (up to 3 students)	15%
Final exam (date: TBD)	45%

Missed midterm(s)

If you miss a midterm with appropriate document, then the weight for the missed midterm will be transferred to the final exam. Please note that approval of such accommodation can only be made by the student's Dean's Office/Academic Counselling unit.

Accommodation and Accessibility:

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or supporting documentation to the Academic Counselling Office of your home faculty as soon as possible. If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in WSC 140, and can be contacted at scibmsac@uwo.ca.

For further information, please consult the university's medical illness policy at http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

If you miss the Final Exam, please contact your faculty's Academic Counselling Office as soon as you are able to do so. They will assess your eligibility to write the Special Exam (the name given by the university to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (see http://www.registrar.uwo.ca/examinations/exam_schedule.html).

Academic Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at these websites: undergraduates: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf, and graduates: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf.

Support Services

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 ext. 82147 if you have questions regarding accommodation.

The policy on Accommodation for Students with Disabilities can be found here: www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_disabilities.pdf.

The policy on Accommodation for Religious Holidays can be found here: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf.

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mental_health) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, <http://westernusc.ca/services>.