

SS4846A/SS9846A Course Outline

1. Course Information

Course Information

Course Number: SS4846A/SS9846A

Course Name: Experimental Designs

Academic Term: Fall, 2022

Lectures: MWF: 9:30-10:30 am

Class Room : UCC 65

List of Prerequisites

A minimum mark of 60% in Statistical Sciences SS3843A/B or SS2858A/B and SS3859A/B, or by permission of the instructor

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.

2. Instructor Information

Instructors	Email	Office	Phone	Office Hours
Dr. Wenqing He	whe@stats.uwo.ca whe23@uwo.ca	WSC213	(519)661-2111 ext. 86982	Mon. 11:30am-12:30pm (In person)
TA: Xinyi Zeng	xzeng85@uwo.ca			

Students must use their Western (@uwo.ca) email addresses when contacting their instructors. Other forms of emails will not be answered.

3. Course Syllabus, Schedule, Delivery Mode

Completely randomized designs, randomized complete and incomplete block designs, factorial and fractional factorial designs, Latin square designs, hierarchical designs, random and fixed effect models.

Learning Outcomes

To become familiar with the use of different statistical experiment designs, and to be able to perform detailed statistical analyses in connection with standard designed experiments.

Table of Contents

1. Introduction
2. Review of linear models
3. Completely randomized designs
4. Randomized complete and incomplete block designs
5. Latin square designs
6. Factorial and fractional factorial designs
7. Hierarchical designs
8. Random and fixed effect models

Key Sessional Dates

Classes begin: September 8, 2022

Reading Week: October 31 to November 6, 2022

Classes end: December 8, 2022

Contingency plan for an in-person class pivoting to 100% online learning

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, affected course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

4. Course Materials

Textbook:

1. Design and Analysis of Experiments, by D. C. Montgomery, John Wiley
2. Statistics for Experimenters, Design, Innovation and Discovery, 2nd edition by George E. P. Box, J. Stuart Hunter and William G. Hunter

Students are responsible for checking the course OWL site (<http://owl.uwo.ca>) on a regular basis for news and updates, including the distributed assignments. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course OWL site, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Assignments (3)	_15_ %
Test #1	_25_ %
Test #2	_25_ %
Final group project	_25_ %
Presentation	_10_ %

Three assignments are due in class on

Oct. 5
Nov. 7
Nov. 28

Two tests in class (closed-book test, one letter-size double-sided help sheet is allowed, a non-programmable calculator is needed. Devices such as a cell phone cannot be used as a calculator in the tests)

Test #1: Oct. 21 (F: 9:30-10:20am)
Test #2: Nov. 30 (W: 9:30-10:20am)

Project Presentations

Each group has 15 minutes for presentation
In classes on Dec. 2, 5, 7, 2022
Group membership will be randomly assigned
Group order will also be randomly assigned

Final group project due

Dec. 12, 11:59pm (Canadian Eastern Time)

Course-specific conditions that are required to pass the course:

Accommodated Evaluations

- Late assessments without illness reports will be counted 0
- Late assessments with illness reports should be submitted within 24 hours of submission of the last illness report
- No make-up tests. The weight of the test will be redistributed to the other assessments
- If the two tests are missed, the student will receive an incomplete (INC) in the course grade. The student will get assessment from the next time the course is offered.

Rounding of Marks Statement

Across the Sciences Undergraduate Education programs, we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during this course. All students will be treated equally and evaluated based only on their actual achievement. *Final*

grades on this course, irrespective of the number of decimal places used in marking individual assignments and tests, will be calculated to one decimal place and rounded to the nearest integer, e.g., 74.4 becomes 74, and 74.5 becomes 75. Marks WILL NOT be bumped to the next grade or GPA, e.g. a 79 will NOT be bumped up to an 80, an 84 WILL NOT be bumped up to an 85, etc. The mark attained is the mark you achieved, and the mark assigned; requests for mark “bumping” will be denied.

6. Student Absences

If you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedures below.

For work totalling 10% or more of the final course grade, you must provide valid medical or supporting documentation to the Academic Counselling Office of your Faculty of Registration as soon as possible. For further information, please consult the University’s medical illness policy at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

The Student Medical Certificate is available at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

7. Accommodation and Accessibility

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf.

8. Academic Policies

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

In accordance with policy,

https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf,

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 their official university address is attended to in a timely manner.

A non-programmable calculator is needed in the tests. Other devices such as cell phones cannot be used as calculator in the tests.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

9. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: <https://www.uwo.ca/sci/counselling/>.

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

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.