

## SS4846A/SS9846A Course Outline

### 1. Course Information

#### Course Information

**Course Number:** SS4846A/SS9846A

**Course Name:** Experimental Designs

**Academic Term:** Fall, 2021

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

**Class Room :** PAB 34

#### 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	<a href="mailto:whe@stats.uwo.ca">whe@stats.uwo.ca</a> whe23@uwo.ca	WSC213	(519)661-2111 ext. 86982	Mon. 11:30am-12:30pm (In person)
TA: Yijia Weng	yweng54@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 experimental designs, and to be able to perform detailed statistical analyses in connection with standard designed experiments.

## Table of Contents and Schedule

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

Reading Week: November 1–7

Classes end: December 8, 2021

## 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, all remaining course content will be delivered entirely online synchronously (i.e., at the times indicated in the timetable). 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. 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)	<u>20</u> %
Test #1	<u>20</u> %
Test #2	<u>25</u> %
Final group project	<u>25</u> %
Presentation	<u>10</u> %

Three assignments due in class on

Oct. 1  
Oct. 29  
Nov. 29

Two tests in class (closed book)

Test #1: Oct. 4 (M: 9:30-10:20am)  
Test #2: Dec. 1 (W: 9:30-10:20am)

Final group project due

Dec. 11, 11:59pm (Canadian Eastern Time)  
Group membership will be randomly assigned

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

- There will be no final grade if both tests are missed. If there are logistical reasons to miss both tests, the student will receive a grade of Incomplete (INC) and will get assessment with the next offering of the course

### Accommodated Evaluations

- Late assessments without illness self-reports will be counted 0
- Late assessments with illness self-reports should be submitted within 24 hours of submission of the last illness self-report
- No make-up tests. The weight of the test will be redistributed to the other test
- 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

## **Academic Consideration for Student Absences**

Students who experience an extenuating circumstance (illness, injury or other extenuating circumstance) sufficiently significant to temporarily render them unable to meet academic requirements may submit a request for academic consideration through the following routes:

- (i) Submitting a Self-Reported Absence (SRA) form provided that the conditions for submission are met. To be eligible for a Self-Reported Absence:
  - an absence must be no more than 48 hours
  - the assessments must be worth no more than 30% of the student's final grade
  - no more than two SRAs may be submitted during the Fall term across all the courses the student takes.
  - **SRA is applicable to undergraduate students only**
- (ii) For medical absences, submitting a Student Medical Certificate (SMC) signed by a licensed medical or mental health practitioner to the Academic Counselling office of their Faculty of Registration.
- (iii) Submitting appropriate documentation for non-medical absences to the Academic Counselling office in their Faculty of Registration.

Note that in all cases, students are required to contact their instructors within 24 hours of the end of the period covered. The student will get a confirmation from the instructor within 48 hours after receiving the student's notice.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For the policy on Academic Consideration for Student Absences – Undergraduate Students in First Entry Programs, see:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_illness.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf)

and for the Student Medical Certificate (SMC), see:

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf).

## **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>.

### **Absences from Final Examinations**

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (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” (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

## **6. Accommodation and Accessibility**

### **Accommodation Policies**

Students with disabilities work with Accessible Education (formerly SSD), 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](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf),

## **7. 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](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 his/her official university address is attended to in a timely manner.

Non-programable calculators will be used in the tests. Other devices are not allowed 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](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).

## **8. 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/>.

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 Accessible Education at (519) 661-2147 if you have any questions regarding accommodations.

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/mentalhealth>) 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>.