



## Fall 2024 Course Syllabus

### **MOS 2242A Section – 001** **Statistics** In-Person

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#### **1. Course Information:**

##### **1.1 Class Location and Time:**

In-Person  
Tuesdays 9:30 a.m. – 12:30 p.m.

See Owl Brightspace for classroom information

##### **1.2 Course Description:**

The purpose of this course is to introduce students to quantitative decision-making skills, with an emphasis on analysis techniques used in management. Topics include: descriptive statistics, probability, hypothesis testing, analysis of variance, correlation and regression, time series forecasting, and survey techniques.

Antirequisite(s): Biology 2244A/B, Economics 2122A/B, Economics 2222A/B, Geography 2210A/B, Health Sciences 3801A/B, Psychology 2811A/B, the former Psychology 2810, the former Psychology 2820E, Psychology 2830A/B, Psychology 2850A/B, Psychology 2851A/B, Social Work 2207A/B, Sociology 2205A/B, Statistical Sciences 2035, Statistical Sciences 2141A/B, Statistical Sciences 2143A/B, Statistical Sciences 2244A/B, Statistical Sciences 2858A/B.

Prerequisite(s): 1.0 course or equivalent from Calculus 1000A/B, Calculus 1301A/B, Calculus 1501A/B; Mathematics 1225A/B, Mathematics 1228A/B, Mathematics 1229A/B, and enrolment in a MOS Honours Specialization, Specialization or Major module.

##### **1.3 Accessibility:**

DAN Department of Management & Organizational Studies strives at all times to provide accessibility to all faculty, staff, students and visitors in a way that respects the dignity and independence of people with disabilities.

Contact Academic Support & Engagement at <http://academicsupport.uwo.ca/> for information about Western's Accessible Education.

More information about "Accessibility at Western" is available at: <http://accessibility.uwo.ca>

#### 1.4 Land Acknowledgement:

We acknowledge that Western University is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Attawandaron peoples, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum.

With this, we respect the longstanding relationships that Indigenous Nations have to this land, as they are the original caretakers. We acknowledge historical and ongoing injustices that Indigenous Peoples (e.g. First Nations, Métis and Inuit) endure in Canada, and we accept responsibility as a public institution to contribute toward revealing and correcting miseducation as well as renewing respectful relationships with Indigenous communities through our teaching, research and community service.

<https://indigenous.uwo.ca/initiatives/docs/indigenous-land-acknowledgment.pdf>

#### 1.5 Senate Regulations

Senate Regulations state, “unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will 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.”

This regulation is in regard to the PREREQUISITE COURSES required.

**Students not in BMOS are permitted to enroll in up to 1.0 MOS courses**, per the Academic Timetable. The requirement that states you must be in BMOS is lifted during registration on the priority lift dates as noted in the [Timetable](#).

## 2. Course Materials

### 2.1 Textbook

The following textbook is **required** for the course:

Black, K., Bayley, T., & Castillo, I. (2023). *Business statistics for contemporary decision-making* (4<sup>th</sup> Canadian edition). Toronto, ON: Wiley. [ISBN: 9781119983224]

The textbook cited is available through The Book Store at Western.

The electronic version of the textbook is bundled with access to the WileyPLUS online portal that provides you with additional online content, which you may find helpful as you navigate the various units of the course. Access to WileyPLUS is optional in this course.

### 2.2 Calculator

You will be required to use a calculator for this course. Please obtain a calculator with which you will feel comfortable working. Any brand of calculator is acceptable.

**If you are not comfortable using calculators, I encourage you to purchase a Sharp-brand calculator.**

If you opt for a non-Sharp calculator, please know that it is your responsibility to know how to use it.

All course material will be posted to OWL: <https://westernu.brightspace.com/>  
Students are responsible for checking the course OWL site (<https://westernu.brightspace.com/>) regularly 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 Brightspace Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

### 3. Course Objectives and Format

The DAN Department of Management and Organizational Studies as a whole draws upon an evidence-based management approach. Evidence-based management is the systematic process of gathering evidence from multiple sources, critically appraising the evidence, and using that evidence in making and evaluating management decisions to improve organizational performance.

#### 3.1 Course objectives

Rooted in principles of the evidence-based management (EBM), this course will focus on enhancing students' ability to obtain and evaluate statistical evidence, which is critical for making a variety of business decisions and policies.

#### 3.2 Course format

The course format will consist of in-person lectures. Student will be provided with **abbreviated** lecture slides in PDF format prior to each lecture via the Brightspace course website.

For each unit, chapter readings have also been assigned. Students are expected to keep up with the readings, and to take their own notes as they complete these readings. Note that the material covered in lectures will not always be the same as the material covered in the textbook. These two sources should be viewed as complementary and not redundant. As such, students who want to do well in this course are strongly encouraged to attend lectures on a regular basis. If students miss a lecture for any reason, it is their responsibility to obtain missed notes from a classmate.

Each week, a set of practice problems will be made available to you, along with the solutions to these problems. The purpose of these problems is to give you additional practice with the course material. These problems will not be graded, and they do not need to be submitted to your instructor. They are simply tools intended to support your learning.

There are no labs or tutorials in this course.

### 4. Learning Outcomes

Upon successful completion of this course, students will be able to:

- conduct a hypothesis test and determine the difference between a one-tailed test and two-tailed test for when the population standard deviation is known and when it is unknown
- list the statistics that appear in an ANOVA and a regression results table, and to understand how they are computed
- define when a time series represents a trend, a seasonal pattern, or a cyclical pattern, or is irregular
- compute the degrees of freedom and examine the significance of the chi-square test statistic

### 5. Evaluation

Exam 1	Tuesday, October 22, 2024; 10:00 a.m. – 12:00 p.m.	= 33%
Exam 2	Tuesday, November 19, 2024; 10:00 a.m. – 12:00 p.m.	= 33%
Exam 3	to be scheduled during the December exam period	= 34%

Exams are **multiple-choice** in format. Each exam, in total, will be scheduled for **2 hours**, will consist of **50-60 questions**, and will be a **closed-book examination**. All exams in the course are **not cumulative**. Therefore, students are required to write all three exams in this course.

Exams 1 and 2 will be completed during class time. Exam 3 will be scheduled during the final exam period. Exams will not be returned to students but may be reviewed in-class.

Students are responsible for material covered in the lectures as well as in the assigned chapters and chapter sections in the textbook. Each exam will have both conceptual and calculation questions. The following types of questions could come up:

- definitions/descriptions of terminology, theoretical concepts, analysis methods/procedures, formulas, assumptions, distributions, degrees of freedom, etc.
- graphs and charts: definitions, descriptions, components, process/method of building a graph/chart, interpretation of what the graph/chart shows, etc.
- calculation based on formulas
- interpretation of numbers (e.g., calculation result)
- interpretation of computer output
- understanding of choice of formulas, methods, graphs/charts, etc. (e.g., when and why would you use one formula over another?)

Only non-programmable calculators will be allowed into the exams. If you are unsure, please ask your professor to check your calculator. Dictionaries are NOT allowed into the examinations.

Students are **REQUIRED TO COMPLETE ALL COMPONENTS** of this course. There are no exceptions to this. Extra assignments to improve grades **will NOT** be allowed.

**Grades will not be adjusted on the basis of need. It is important to monitor your performance in the course. Remember: You are responsible for your grades in this course.**

The DAN Department has a grade policy which states that for courses in the 2000-level range, the class average must fall between 65% and 72% for all sections of a course taught by the same instructor. In very exceptional circumstances only, class averages outside this range may be approved by the Undergraduate Chair or Chair. Class averages are not grounds for appeal.

## 6. Lecture and Examination Schedule

The following schedule is a guideline only and may be subject to change.

Unit	Date	Unit Topic	Textbook Chapters/Sections
<b>PART 1</b>			
1	Week 1	Introduction to Statistics	Chapter 1: 1.1, 1.2, 1.3, 1.5 Chapter 7: 7.1
2	Week 2	Describing & Displaying Data	Chapter 2: 2.1, 2.2, 2.3 Chapter 3: 3.1, 3.2, 3.3, 3.4
3	Week 3	Random Variables & Probability Distributions (Discrete)	Chapter 4: 4.1, 4.2 Chapter 5: 5.1, 5.2, 5.3
4	Week 4	Random Variables & Probability Distributions (Continuous)	Chapter 6: 6.2, 6.3 Chapter 7: 7.2
5	Week 5	Single-Sample Hypothesis Testing	Chapter 7: 7.3 Chapter 8: 8.1, 8.2, 8.3 Chapter 9: 9.1, 9.2, 9.3, 9.4

## Two-Sample Hypothesis Testing

	Reding week	No lectures this week.	
6	Week 6	Two-Sample Hypothesis Testing	Chapter 10: 10.1, 10.2, 10.3, 10.5
7	Week 7	Analysis of Variance (Independent)	Chapter 11: 11.1, 11.2, 11.3
8	Week 8	Analysis of Variance (Dependent)	Chapter 11: 11.4
9	Week 9	Chi-Square Tests for Nominal Data	Chapter 16: 16.1, 16.2
10	Week 10	Correlation & Simple Linear Regression	Chapter 12: 12.1, 12.2, 12.3, 12.4, 12.5, 12.6, 12.8
11	Week 11	Multiple Regression	Chapter 13: 13.1, 13.2, 13.3, 13.4 Chapter 14: 14.3, 14.4
12	Week 12	Time Series Forecasting	Chapter 14: 14.2 Chapter 15: 15.1, 15.3, 15.4
	During the final exam period (Dec. 9-22)	Final exam	

## 7. Student Responsibilities

Students should familiarize themselves with Western University Senate Regulations, please see: [http://www.uwo.ca/univsec/academic\\_policies/index.html](http://www.uwo.ca/univsec/academic_policies/index.html).

Material covered in lectures will not always be the same as material covered in the textbook. These two sources should be viewed as complimentary and not redundant. As such, students who want to do well in this course are **strongly encouraged** to attend lectures on a regular basis. Please note that the instructor will not be providing copies of lectures notes or overheads. Therefore, if you miss a lecture, you should try to obtain this material from another student.

### 7.1 Respect

Please act respectfully towards the classroom, the instructor and your fellow students. Acting respectfully means arriving on time, turning off phones, avoiding private discussions during

lectures, refraining from viewing non-course material on your laptops, and cleaning up after yourself. Acting respectfully provides a better learning experience for everyone.

Private in-class discussions are distracting to students and the instructor. If other students are distracting your attention from the material, you should ask them to be quiet. If you feel uncomfortable doing this (or the problem persists), please see your instructor.

Late arrivals are also distracting. Please try to arrive on time for classes.

## 7.2 No Recording of Classes

Students are not permitted to record any portion of a class, audio or video, without the prior written permission of the instructor.

## 7.3 Copyright Notice

Lectures and course materials, including power point presentations, outlines, and similar materials, are protected by copyright. You may take notes and make copies of course materials for your own educational use. You may **not** record lectures, reproduce (or allow others to reproduce), post or distribute lecture notes, wiki material, and other course materials publicly and/or for commercial purposes without the written consent of your instructor.

# 8. Exam Policies

- Bring student identification to exams.
- Nothing is to be on/at one's desk during an exam except a pencil, an eraser, and the individual's student card
- Do not wear baseball caps to exams
- Do not bring music players, cell phones, beepers, or other electronic devices to exams

# 9. E-mail Policies

The following policies apply to all emails between students and the Professor. Please respect the fact that the Professor receives hundreds of emails from students and must deal with those emails in a fair and organized manner. Unacceptable emails will receive a reply saying only "Please see Email Policies on the course outline".

## 9.1 UWO.CA Email Addresses Only

For privacy reasons, students must use their Western email accounts to contact the Professor. The Professor will not respond to emails from non-uwo.ca addresses (e.g. hotmail.com, gmail.com, etc.).

## 9.2 Subject Line Must Include Course and Section Number

The subject line of emails must contain the name or number of the course, and the section number in which the student is enrolled. The Professor teaches different courses and sections and cannot properly respond to questions if he does not know which course or section you are enrolled in.

## 9.3 Acceptable Emails

- questions about the course content or materials
- asking to set up an appointment to ask questions or review an exam
- notification of illness or other special circumstances
- providing constructive comments or feedback about the course

## 9.4 Unacceptable Emails

- questions that may be answered on Brightspace or on this course outline
- asking when grades will be posted
- asking what grade a student received
- asking where or when an exam is scheduled or the material covered on an exam
- requests for grade increases, extra assignments, or reweighting of course components

## 10. Attendance

It is expected that students will attend all classes. The professor does not provide access to lecture notes. Students are encouraged to obtain missed lecture notes from a fellow student.

### 10.1 Short Absences.

If you miss a class due to minor illness or other problems, check your course outlines for information regarding attendance requirements and make sure you are not missing a test or exam. Cover any readings and arrange to borrow the missed lectures notes from a classmate.

### 10.2 Extended Absences.

If you are absent more than approximately two weeks or if you get too far behind to catch up, you should consider reducing your workload by dropping one or more courses. The [Academic Counsellors](#) can help you to consider the alternatives. At your request, they can also keep your instructors informed about your difficulties.

## 11. Grade Fairness

Fairness requires that all students be treated equally and be evaluated using the criteria set out in this course outline. The evaluation criteria are based on actual achievement and not on how hard a student has tried.

Claims by students of an excellent academic history, good attendance record, need to obtain or maintain a scholarship, desire to be admitted to Ivey or graduate school, or other personal issues, cannot be used to justify a higher grade in the course or a reweighting of course components. There is no extra work or assignments available for extra credit or to “make up” for a course component that was missed or performed poorly.

**You, the student, are responsible for the grades earned.**

## 12. Posting of Grades

Midterm exam grades will be posted on Brightspace once the grades are available. Final exam grades and final course grades are not posted on Brightspace and are available once they have been posted by the Registrar under “Academic Summary” at the [Student Centre](#) website.

## 13. University Policy Regarding Illness, Absence and Accommodation

### 13.1 Illness

Students will need to provide a Student Medical Certificate if the absence is medical or provide appropriate documentation if there are compassionate grounds for the absence in question. Students are encouraged to contact their Faculty Academic Counselling office to obtain more information about the relevant documentation.

For privacy reasons, students should also note that individual instructors should not 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 must be submitted to the Academic Counselling office of a student's Home Faculty.

For details on the Policy on Accommodation for Medical Illness, go to:  
[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/academic\\_consideration.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration.pdf)

Students can download the Student Medical Certificate (SMC) here:  
[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf)

### **13.2 Accessible Education**

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The accommodation policy can be found here:  
[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)

Students needing access to Accessible Education should register here:  
[http://academicsupport.uwo.ca/accessible\\_education/index.html](http://academicsupport.uwo.ca/accessible_education/index.html)

### **13.3 Religious Accommodation**

Students should consult the University's list of recognized religious holidays, and should give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic Counsellor if their course requirements will be affected by a religious observance. Additional information is given in the [Western Multicultural Calendar](#).

### **13.4 Make Up Examinations**

A student must write a make-up exam if any scheduled exam is missed for reasons for which adequate documentation is received by the instructor (this documentation must be supplied by the [Academic Counseling office](#)).

The date and time of the make-up examination will be set by the instructor, who will communicate the date to the student.

If a student is unable to meet the scheduled make-up, then the student is responsible for obtaining new accommodations from Academic Counselling, and seeking a new make-up date with the instructor within a reasonable time frame.

## **14. University Policy on Cheating and Academic Misconduct**

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)

Students are responsible for understanding the nature of and avoiding the occurrence of plagiarism and other academic offenses. Students are urged to read the section on Scholastic Offenses in the [Academic Calendar](#).

Note that such offenses include plagiarism, cheating on an examination, submitting false or fraudulent assignments or credentials, impersonating a candidate, or submitting for credit in any course without the knowledge and approval of the instructor to whom it is submitted, any academic work for which credit has previously been obtained or is being sought in another course in the University or elsewhere. If you are in doubt about whether what you are doing is inappropriate, consult your instructor. A claim that "[you didn't know it was wrong](#)" will not be accepted as an excuse.



The use of AI and translation tools in written work beyond a dictionary is not permitted unless permission is granted by the instructor for specific circumstances. Any work submitted must be the work of the student in its entirety unless otherwise disclosed. When used, any such AI or translation tool should be used ethically and responsibly, and students must cite or credit the tools used in line with the expectation to use AI as a tool to learn, not only to produce content.

A copy of guidelines about how to avoid cheating can be obtained from the Office of the Ombudsperson, Room 3135 WSSB, (519) 661-3573, [ombuds@uwo.ca](mailto:ombuds@uwo.ca).

Cheating on exams will not be tolerated; students are referred to the university policy on scholastic offenses. Looking at the test of another student, allowing another student to view your exam, or obtaining information about a test in advance are all examples of cheating.

Students found cheating will receive a zero (0%) on that exam. A number of safeguards will be employed to discourage cheating. For example, examination supervisors (proctors) of the tests may ask students to move to another seat during the exam, cover their paper, avert their eyes from other students' papers, remove baseball caps, etc. This is not meant as a personal affront nor as an accusation of cheating, rather as vigilant attempts at proctoring.

The penalties for a student guilty of a scholastic offense include refusal of a passing grade in the assignment, refusal of a passing grade in the course, suspension from the University, and expulsion from the University.

## 15. Procedures For Appealing Academic Evaluations

1. In the first instance, all appeals of a grade must be made to the course instructor (informal consultation).
2. If the student is not satisfied with the decision of the course instructor, a written appeal must be sent to the Undergraduate Chair: Student Affairs of the Department of Management and Organizational Studies.
3. If the response of the Undergraduate Chair is considered unsatisfactory to the student, he/she may then appeal to the Dean of the Faculty in which the course of program was taken.
4. Only after receiving a final decision from the Dean may a student appeal to the Senate Review Board Academic. A Guide to Appeals is available from the Office of the Ombudsperson.

## 16. Support Services

### 16.1 Support Services

The Registrar's office provides you with information on services, courses, student finances, resources, latest news, as well as Student Central's hours of operation at <http://www.registrar.uwo.ca>

Student Support Services (*including the services provided by the USC listed here*) can be reached at: <http://westernusc.ca/services/>

Academic Support & Engagement can be reached at: <http://academicsupport.uwo.ca>

Students who are in emotional/mental distress should refer to Health and Wellness: <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help.

### 16.2 Academic Concerns.

If you are in academic difficulty, it is strongly recommended that you see your academic counsellor.