



Stats1023A 570
Statistical Concepts
Fall 2026

Instructor: Vincent Glavine
Email: vglavine@uwo.ca

Course Information

Mode of Instruction: In-Person

Calendar Description:

An examination of statistical issues aiming towards statistical literacy and appropriate interpretation of statistical information. Common misconceptions will be targeted. Assessment of the validity and treatment of results in popular and scientific media. Conceptual consideration of study design, numerical and graphical data summaries, probability, sampling variability, confidence intervals and hypothesis tests.

Anti-requisite(s): Data Science 1000A/B, Statistical Sciences 2244A/B, Biology 2244A/B, Statistical Sciences 2037A/B.

Extra Information: Offered in two formats: 3 lecture hours, or weekly online lectures and 2 in-class lab hours.

Course Weight: 0.50

Breadth: Category C

Subject Code: Stats

Notice: Unless you have either the requisites for this course (fulfilment of pre-requisites, no anti-requisite conflicts), or special permission from your Dean to enrol 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.

STATISTICAL SCIENCES 1023A FALL 2026

SECTIONS 570 – 571 - 572

Instructor Information

Instructor: V. Glavine

Email: vglavine@uwo.ca

Office Hours: Monday – Thursday 11:00am – 12 noon

Course Information

Course Description: An examination of statistical issues aiming towards statistical literacy and appropriate interpretation of statistical information. Common misconceptions will be targeted. Assessment of the validity and treatment of results in popular and scientific media. Conceptual consideration of study design, numerical and graphical data summaries, probability, sampling variability, confidence intervals and hypothesis tests.

Anti-requisites: Data Science 1000A/B, Statistical Sciences 2244A/B, Biology 2244A/B, Statistical Sciences 2037A/B.

Warning: You cannot take a listed anti-requisite course concurrently with Stats 1023A/B. 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. You can be deregistered at any time even after writing the final exam. This decision may not be appealed. You will receive no adjustment to your fees in the event you are dropped from a course for failing to have the necessary prerequisites.

Course Materials: Textbook/Achieve (required)

Introduction to the Practice of Statistics, 10th edition, by Moore, McCabe and Craig. There are two options to purchase the textbook: eBook or hard copy. You may choose either of them:

- Option 1 (eBook): Achieve for Introduction to the Practice of Statistics 150-day Access (\$94.00)
- Option 2 (hard copy): Introduction to the Practice of Statistics LL Achieve (\$153.00)
- https://bookstore.uwo.ca/textbook-search?campus=KC&term=W2026A&courses%5B0%5D=570_KC/STA1023A

Achieve is an online service provided by the textbook publisher, offering a range of resources such as supplementary videos, online applets, tutorials, and extra practice problems. These tools are especially helpful for reinforcing challenging concepts. All course quizzes will be administered through Achieve. Therefore, students will need a stable high speed internet connection for this course.

Please note that if you purchase a second-hand textbook, you must buy a separate subscription to Achieve from the publisher's website, as the access code cannot be transferred from the original owner.

Mode of Instruction

This course will have in person instruction. It will be a lectured course where student will be expected to take lecture notes. Annotated notes will not be posted.

Assessments

You will need a pocket (non-programmable) calculator for course assessments.

Textbook Exercises (not graded)

A schedule of topics and recommended textbook exercises are provided in this course outline (see below). Although these exercises are not graded, they offer excellent practice and will be beneficial for your learning and preparation for quizzes and tests. Instructor solutions to the textbook exercises can be found on OWL.

A) Online Progress Quizzes in ACHIEVE

There will be **4 open-book quizzes** administered through **ACHIEVE**. The quizzes are to be written within the following 48-hour date windows, 6:00 p.m. on Thursday to 6:00 p.m. (*EDT*, eastern daylight time) on Saturday:

- Quiz 1 is available from 6:00 pm, Thursday, Sept. 24 to 6:00 pm, Saturday, Sept 26
- Quiz 2 is available from 6:00 pm, Thursday, Oct. 22 to 6:00 pm, Saturday, Oct. 24
- Quiz 3 is available from 6:00 pm, Thursday, Nov. 5 to 6:00 pm, Saturday, Nov. 7
- Quiz 4 is available from 6:00 pm, Thursday, Nov. 26 to 6:00 pm, Saturday, Nov. 28

Each quiz will consist of between 8 to 10 multiple-choice / fill in the blank style questions and will be cumulative. Students will have 1 hour to complete each quiz, with 2 attempts allowed per question, and the highest score recorded. Quiz grades will be available in Achieve after the quiz deadline. These are open book/notes quizzes, but they must be completed independently.

Please note that there is no accommodation for missed online quizzes as accommodation is already considered within the marking scheme (best 3 of 4).

B) Midterm Exam

There will be a 2-hour midterm exam for this course. Topics for the exam will be announced in advance through OWL. The format of the midterm exam will be a multiple-choice examination or a combination of multiple choice and short written answer questions.

- **Midterm, Oct. 30, Friday, 7:00 pm to 9:00 pm, room TBA**

Academic consideration for this midterm exam requires submission of formal supporting documentation. Students who miss the midterm will need to obtain academic accommodation to write the make-up exam. If the reason is not deemed valid, a mark of 0 will be applied. If the reason is deemed valid, the make-up exam will take place on Friday, Nov. 6, 2026. Students who miss the makeup with academic consideration will have their midterm reweighted to the final exam. There are no additional midterm makeup opportunities for any reason.

C) Final Exam

The final exam will be a three-hour cumulative multiple-choice examination or a combination of multiple choice and short written answer questions. A formula page will be provided. It will be scheduled by the Registrar's office (During the Examination period Dec. 11 – Dec. 22, 2026).

D) Religious accommodations

Students seeking religious accommodations for any coursework must make such requests to academic counselling at least one week in advance (and at least two weeks in advance for final exams). After academic counselling has been contacted, you must then notify your instructor.

E) Use of artificial intelligence (AI)

Within this course, use of artificial intelligence (AI) tools such as Chat GPT is not permitted for quizzes, tests, and exams submitted for evaluation. Unauthorized use of AI will be subject to academic discipline. **Please note that instructor reserves the right to seek additional clarification about any submitted work (e.g., explain a solution) as part of any test or exam, including any multiple-choice tests.**

Evaluation

Your course grade will be determined using the following marking scheme:

Assessments	Weight (%)
Progress Quizzes (best 3 of 4)	15
Midterm Exam	35
Final Exam	45
*Float Weight	5

*The float weight worth 5% will be applied to a student's highest grade from the midterm exam or the Final Exam. For example, if a student obtains 75% for midterm and 80% for the final exam, then the final exam will be worth 45%+5% of the course grade for that student. If a student obtains 80% for midterm and 75% for the final exam, then midterm will be worth 35%+5% of the course grade for that student.

A formula sheet and statistical tables will be provided at the midterm exam and final exam.

Due to the flexibility of the marking scheme, there is no make-up for any reason for missed quizzes. Accommodation is already considered within the marking scheme.

For reference, the following are Western's university-wide grade descriptors:

- A+ 90-100 One could scarcely expect better from a student at this level
- A 80-89 Superior work which is clearly above average
- B 70-79 Good work, meeting all requirements, and eminently satisfactory
- C 60-69 Competent work, meeting requirements
- D 50-59 Fair work, minimally acceptable
- F below 50 Fail

Course Website

Students are responsible for checking OWL Brightspace on a regular basis. This is the primary method by which information will be disseminated to all students in the class.

Learning Outcomes and Course Objectives

The course provides an introduction to statistics. By the end of the course students should have a basic understanding of:

- the techniques used in exploring, organizing and describing data;
- producing data through surveys and experiments.
- the basic concepts of statistics (define, explain, and use these concepts)
- the basic concepts of probability and distributions (define, explain, and use these concepts)
- statistical inference: including confidence interval construction and tests of hypotheses.

Attendance Policy

Attendance is required. Missing 30% of scheduled classes is considered to be too frequent. A warning email may be issued at the 25% point and if absences continue the instructor will implement the King's attendance policy below:

King's policy states that "A student may be debarred from writing the final exam for failure to maintain satisfactory academic standing throughout the year. Any student who, in the opinion of the instructor, is absent too frequently from class or laboratory periods in any course, will be reported to the Dean of the Faculty offering the course, after due warning has been given. On the recommendation of the department concerned, and with the permission of the Dean of that Faculty, the student will be debarred from taking the regular examination in the course."*

* Implies that faculty must be tracking and have communicated attendance concerns to student

Email Communication Policy

Students must use their uwo email address when emailing the instructor so it does not end up in spam and can be verified. Subject line must include course and section number. MEM faculty will endeavor to respond to student emails within 3 business (working) days.

Email communication should be reserved only to provide information or ask a question that requires a very brief response; questions related to the course content should be communicated during regular office hours or by appointment.

- When emailing me please address me in a professional manner.
- All interactions between students and faculty should be governed by the principles of **courtesy, respect, and honesty.**
- **Students are encouraged to ask questions in the class.**
- Any unnecessarily loud talking or disruptive behaviour, which may include the use of a cell phone, laptop computer or tablet for non-academic reasons, among students is not permitted. The goal is to reduce any behaviour by students that may disrupt the instructor or the learning of other students.
- Taking pictures in class is **STRICTLY FORBIDDEN.**

Technology Requirements

While exams are written in person, you still must have access to a computer or laptop, as well as stable high-speed internet connection to fully participate in this course.

Instructor Policies / Student Expectations

- Please put your phones on silent and refrain from being on your phone during lecture. If you have to take a call, please step outside the room without disrupting others.
- Please avoid being late. If you are late, please enter the room quietly.
- Regular attendance at classes is an expectation.
- Completion of all assigned work including the textbook exercises and Achieve progress quizzes.
- Awareness of items on OWL and use of materials posted on the course OWL website.
- It is up to the student to seek out help when needed.

Academic Integrity:

- It is expected that all the work you submit will be your own.
- Academic integrity policies at Western require that instructors forward to their department chair or director any evidence of academic offenses.
- Cheating is taken seriously to protect the integrity of our measures of your learning.
- 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
- Tests, quizzes, and exams may be subject to similarity review (by hand or by software) to check for unusual coincidences in answer patterns that may indicate cheating.
- Instructors reserve the right to seek additional clarification about any submitted work (e.g. explain a solution) as part of any assessment.

Intellectual Property Statement

Course content created by a faculty member is considered the faculty member's intellectual property; it should not be distributed, shared in any public domain, or sold by a student or other third party without prior written consent of the faculty member. Sharing, posting, selling or using this material outside your personal use in this course is considered to be an infringement of intellectual property rights.

Chapter	Textbook Exercises
1	1.1, 1.3, 1.7, 1.11, 1.13, 1.15, 1.17, 1.19a, 1.29, 1.31, 1.33a,b, 1.52 (Complete by hand check with CrunchIt), 1.61, 1.63, 1.65, 1.67, 1.73, 1.76, 1.77, 1.79, 1.85, 1.86, 1.87, 1.91
2	2.1, 2.2, 2.6, 2.8, 2.9, 2.10, 2.11, 2.12, 2.16, 2.18, 2.28, 2.29, 2.30, 2.33, 2.34, 2.44, 2.45, 2.49, 2.50, 2.52, 2.55, 2.57, 2.62, 2.76 (Calculate by hand), 2.82, 2.103
3	3.1, 3.4, 3.6, 3.22, 3.26, 3.27, 3.30, 3.31
4	4.1, 4.2, 4.6, 4.8, 4.9, 4.10, 4.12, 4.14, 4.17, 4.19, 4.20, 4.25, 4.26, 4.34, 4.35, 4.40, 4.41, 4.43, 4.46, 4.47, 4.51, 4.52, 4.61, 4.62, 4.63, 4.65, 4.75, 4.78, 4.80, 4.81, 4.82, 4.83, 4.85, 4.88, 4.90, 4.97, 4.99, 4.100, 4.101, 4.115a
5	5.1, 5.2, 5.3, 5.4, 5.6, 5.14, 5.15a, 5.16, 5.20
6	6.1, 6.2, 6.3, 6.4, 6.5, 6.7, 6.11, 6.14, 6.16, 6.21, 6.26, 6.27, 6.28, 6.32, 6.33, 6.37, 6.43, 6.45 (solution answer seems slightly off compared to CrunchIt analysis) 6.46, 6.47, 6.48, 6.49, 6.50, 6.51, 6.61, 6.63, 6.111
7	7.1, 7.2, 7.3, 7.6, 7.8, 7.9, 7.11, 7.14, 7.16, 7.17a, 7.26, 7.30 (Review equivalence testing for 7.30c pages 395 – 396), 7.35, 7.39, 7.40a, 7.66, 7.68

Some of the exercises above will be completed using technology. This textbook / (Achieve) provides a built in software program called CrunchIt which will allow you to complete these exercises. For example, question 1.13 asks you to make a pie graph and bar graph which CrunchIt will do for you. Questions will often have these icons next to them which you will click on and then use the appropriate software or applet to complete the question.



Otherwise complete the exercises via pen and paper.

Lecture Schedule is Approximate.

Week	Date	Class	Topics	Assessments
1	Sept. 9 – Sept. 11	Course Intro & Section 1.1	• Syllabus • Key characteristic of datasets	
		Section 1.2	• Graphing categorical and quantitative variables	
2	Sept. 14 – Sept. 18	Section 1.3	• Measures of center • Measures of spread • Boxplots	
		Section 1.4	• Density Curves • Normal Distributions • Normal Q-Q Plots	
3	Sept. 21 – Sept. 25	Section 2.1, 2.2, 2.3	• Examining Relationships • Scatterplots • Transformations • Correlation	Achieve Quiz 1 Opens Sept. 24 @ 6pm Closes Sept. 26 @ 6pm
4	Sept. 28 – Oct. 2	Section 2.4	• Least Squares Regression • Prediction • Correlation and regression	
		Section 2.5	• Cautions about correlation and regression	
5	Oct. 5 – Oct. 9	Section 2.6 & 2.7	• Two-way tables • Joint Distributions • Simpson's Paradox • Causation	
		Section 3.1 – 3.3	• Sources of data • Experiments and randomization • Matched pairs and block designs • Sampling techniques	
6	Reading Week - No Classes			
7	Oct. 19 – Oct. 23	Section 4.1, 4.2	• Probability • Sample spaces • Probability rules	Achieve Quiz 2 Opens Oct. 22 @ 6pm Closes Oct. 24 @ 6pm
8	Oct. 26 – Oct. 30	Section 4.3	• Discrete and continuous random variables • Normal Distributions	Midterm Exam Oct. 30 7pm to 9pm Location: TBA
		Section 4.4	• Mean of a random variable • Law of Large Numbers	
9	Nov. 2 – Nov. 6	Section 4.5	• Probability Rules • Independence	Achieve Quiz 3 Opens Nov. 5 @ 6pm Closes Nov. 7 @ 6pm
		Section 5.1	• Sampling Distributions	

10	Nov. 9 – Nov. 13	Section 5.2	• Sampling Distribution of a sample mean • Central Limit Theorem	
		Section 6.1	• Confidence Intervals for sample mean • Choosing a sample size	
11	Nov. 16 – Nov. 20	Section 6.2, 6.3, 6.4	• Hypothesis testing • Testing for population means • Cautions about hypothesis testing • Decision errors	
		Section 7.1	• t – distribution • One sample t CI • Matched pairs t procedures	
12	Nov. 23 – Nov. 27	Section 7.2	• Two sample testing • Two sample CI	Achieve Quiz 4 Opens Nov. 26 @ 6pm Closes Nov. 28 @ 6pm
13	Nov. 30 – Dec. 4	Section 7.3	• Sample size for confidence intervals	

Note: Midterm exam and final exam topics will be finalized and announced closer to the midterm / exam dates.

KING'S UNIVERSITY COLLEGE

GENERAL COURSE POLICIES

2026-2027

1. Academic Accommodations, Consideration for Absences

Academic Accommodation (Accessibility)

Accessibility Services works to ensure that academic programs are accessible to all students, and supports students who may have a condition related to, but not limited to, vision, hearing, mobility, different ways of learning, mental health, chronic illnesses, chronic pain, autism spectrum disorder, ADD/ADHD, and temporary conditions (beyond short-term academic consideration). Accessibility Services provides recommendations for accommodation based on medical documentation or psychological and cognitive assessment. The accommodation policy can be found [here](#) Academic Accommodation for Students with Disabilities. Information on Accessibility Services at King's can be found [here](#).

Academic Consideration for Student Absence

If a student is unable to meet a course requirement due to substantial but temporary extenuating circumstances (medical or compassionate), they should follow the procedures below.

In some cases, where instructors have built flexibility into their assessments, this flexibility will already address consideration needs.

Requests for academic consideration should be directed to the Academic Advising Office of your faculty/college of registration. Requests must be made as soon as possible and no later than 48 hours after the missed assessment.

As a rule, documentation is required for academic consideration. For academic consideration requests on medical grounds, the Student Medical Certificate is available at <https://registrar.uwo.ca/academics/pdfs/student-medical-certificate.pdf>

Students are permitted one academic consideration request without supporting documentation per term per course.

Instructors may designate one assessment per half-course weight as requiring formal supporting documentation. Please refer to the course outline for each course.

For further information, please see:

https://uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf

Absences from Final Examinations

If you miss the Final Exam, contact the Academic Advising Office of your faculty/college 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, or more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under Special Examinations).

Religious Accommodation

Students should consult the University's list of recognized religious holidays, and should give notice in writing to the instructor and Academic Advising Office if a course requirement will be affected by a religious holiday/observance. Notice must be given as early as possible, and no later than two weeks prior to an examination, and one week prior to a midterm test date. It is the responsibility of such students to inform themselves concerning the work done in classes from which they are absent and to take appropriate action.

2. Support Services

Accessibility, Counselling and Student Development at King's University College:

<https://kings.uwo.ca/community/library/services/accessibility/>

Students experiencing emotional or mental health distress can access services at King's University College: <https://kings.uwo.ca/campus-life/student-supports/>

Good2talk is a good online and phone 24/7 resource for students and is available in English, Mandarin, and French: <https://good2talk.ca>, 1-866-925-5454

MentalHealth@Western provides a complete list of options about how to obtain help:

<https://www.uwo.ca/health/mental-health/index.html>

Academic Support Services at King's University College:

<https://www.kings.uwo.ca/current-students/academic-resources/>

GBSV Support:

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

Mental Health and Wellness at King's - King's University College

You can reach someone supports at Kings by emailing Care@kings.uwo.ca or calling 519-930-4640 to reach a social worker who can offer help.

You can also reach Western's Gender-Based Violence & Survivor Support Case Manager by email or by calling 519-661-3568.

You can reach someone supports at Kings by emailing Care@kings.uwo.ca or calling 519-930-4640 to reach a social worker who can offer help.

3. Statement on Use of Electronic Devices

Use of Electronic Devices: Unless explicitly stated otherwise, you are not allowed to have a cell phone, or any other electronic device, with you during tests or examinations. Unauthorized possession of such a device during a test or examination constitutes an academic offence.

Use of Laptops, Tablets, and Smartphones in the Classroom: King's University College at Western University acknowledges the integration of new technologies and learning methods into the curriculum. The use of electronic devices such as laptop computers, tablets, or smartphones can contribute to student engagement and effective learning. At the same time, King's recognizes that instructors and students share jointly the responsibility to establish and maintain a respectful classroom environment conducive to learning.

The use of electronic devices by students during lectures, seminars, labs, etc., shall be for matters related to the course at hand only. Students found to be using electronic devices for purposes not directly related to the class may be subject to sanctions under the Student Code of Conduct; see https://kings.uwo.ca/sites/2025/assets/files/about/governance/policies/board/Board%20Policy%203_1%20Code%20of%20Student%20Responsibilities%20and%20Conduct.pdf

Inappropriate use of electronics (e.g., laptops, tablets, smartphones) during lectures, seminars, labs, etc., creates a significant disruption. As a consequence, instructors may choose to limit the use of electronic devices in these settings. In addition, in order to provide a safe classroom environment, students attending in-person class sessions are strongly advised to operate laptops with batteries rather than power cords.

4. Statement on Academic Offences

King's is committed to academic integrity. Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, is posted at https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_offences.pdf

It is expected that students will submit work that is truly their own, completed without external assistance (human or artificial) except as explicitly permitted by the course instructor. Check with your instructor on what tools, including generative AI (ChatGPT, translation tools, grammar-checking tools) are permitted in the course. Because a tool is permitted in one course, that does not mean it is permitted in other courses.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system; see <https://elearningtoolkit.uwo.ca/tools/Originality Reports - TurnItIn.html>.

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

5. Copyright of Course Material

Lectures and course materials, including PowerPoint presentations, tests, outlines, and similar materials are protected by copyright. Faculty members are the exclusive owner of copyright in those materials they create. Students may take notes and make copies for their own use. Students may not allow others to reproduce or distribute lecture notes and course materials publicly (whether or not a fee is charged) without the express written consent of a faculty member. Unauthorized sharing of class content is subject to academic discipline.

Similarly, students own copyright in their own original papers and exam essays. If a faculty member wishes to post a student's answers or papers on the course website, they should ask for the student's written permission.

6. Use of Recordings

Participants in this course are not permitted to record the sessions, except where recording is an approved accommodation and/or the participant has the prior written permission of the instructor. Unauthorized recording and/or sharing of class content is subject to academic discipline.

7. Policy on Attendance

Any student who, in the opinion of the instructor, is absent too frequently from class or laboratory periods in any course, will be reported to the Dean of the Faculty offering the course, after due warning has been given. On the recommendation of the department concerned, and with the permission of the Dean of that Faculty, the student will be debarred from taking the regular examination in the course.