

Department of Statistical and Actuarial Sciences

Statistics 1023A (Statistical Concepts) and Statistics 2037A (Statistics of Health)

Course outline for Fall 2020



Although this academic year might be different, Western University is committed to a **thriving campus**. We encourage you to check out the [Digital Student Experience](#) website to manage your academics and well-being. Additionally, the following link provides available resources to support students on and off campus: <https://www.uwo.ca/health/>.

Technical Requirements and Important Dates:



Stable internet connection



Laptop or computer



Working microphone



Working webcam



Classes Start	Reading Week	Classes End	Study day(s)	Exam Period
September 9	November 2 - 8	December 9	December 10	December 11 - 22

* November 12, 2020: Last day to drop a first-term half course or a first-term full course without penalty

1. Course Information

Course information

Statistics 1023A (Statistical Concepts) and Statistics 2037A (Statistics of Health)
Fall 2020

Location: Online – Zoom

Hours: Weekly - 3 hours

- Synchronous online: 2 hours Tuesday 1:30 – 3:30 pm
- Asynchronous online: 1 hours

List of Prerequisite(s) None

List of Antirequisite(s) Statistical Sciences 2037A/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. 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

Lecturer	Qihuang Zhang
Departments	Statistical & Actuarial Sciences
Hours*	Monday, 1:00 pm–3:00 pm in Online
Email	Use OWL messages <i>only</i> (contact 'Instructor Role') - <i>not</i> UWO email

Teaching Assistants	Aghahosseinalishirazi Zahra (zaghahos@uwo.ca)
	Chen Junhe (jche64@uwo.ca)
	Huang Yiming (yhuan545@uwo.ca)
	Zandi Sahab (szandi@uwo.ca)



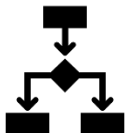
*Any additional help sessions or drop-in hours before tests/exams, as well as any change to regular drop-in hours (these may need to be rescheduled from time to time), will be posted to OWL announcements. Please note that individual appointments will not be scheduled outside drop-in hours unless you have direct timetable conflicts with the entire drop-in period. Students must use their Western (@uwo.ca) email addresses when contacting their instructors.

Communicate with the Instructor

Use the OWL Messages (to 'Instructor Role') tool when asking a personal administrative question (i.e. confidential questions about marks, participation, progress, absences, etc.) that requires a brief response; course content related questions or non-personal questions should be posted to the OWL Forums. You can expect a response to an OWL message to the instructor or a posting to the Forum within ~48 hours during the work week (during busy times, it may take a little longer). Note that Messages or Forum questions will not be answered within the 24-hour period before the tests or exams, nor can I guarantee responses over weekends/holidays. This 'black-out' period is not meant to be punitive; it is meant to encourage students to be proactive in seeking help and preparing for assessments.

3. Course Syllabus, Schedule, and Delivery Mode

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 population and scientific media. Conceptual consideration of study design, numerical and graphical data summaries, probability, sampling variability, confidence intervals and hypothesis tests.



Type	Mode	Dates	Time	Frequency
Lecture	Synchronous online	Tue	1:30pm-3:30pm	weekly
Online Lecture	Asynchronous online			weekly

Learning Outcomes



By the end of this course, it is my hope that you will:

- Understand and correctly use foundational vocabulary associated with statistics;
- Interpret, create (with the aid of suitable applets), and critically evaluate graphical and numerical summaries;
- Understand and appreciate probability, chance, randomness, and ‘average’;
- Understand, assess, and critique the validity of conclusions of statistical studies;
- Critically evaluate statistical information presented in the media and society;
- Apply concepts learned in this course to future courses, careers, and everyday life.

Table of Contents and Schedule

Week	Topic(s)	Important Dates/Reminders
Sept 9-13		<i>No class for Stats 1023</i>
Sept 14-20	Introduction to course, statistics, and data	
Sept 21-27	Summarizing Data I Measures of shape, centre, & spread; 5-number summary Interpreting & evaluating descriptive statistics	
Sept 28-Oct 4	Summarizing Data II normal distributions & standardized scores; graphical summaries applying the empirical rule; misleading graphs	Assignment 1 Due <i>Oct 4 11:59pm</i>
Oct 5-11	Sampling Strategies and Study designs vocabulary and designs for sampling & studies selection bias, confounding, & principles of experimental design	Midterm 1
Oct 12-18	Survey design Variation and surveys measurement bias; catch-up from Sampling and Study Design	
Oct 19-25	Data Visualization Venn diagram; Table; Histogram	Assignment 2 Due <i>Oct 25 11:59pm</i>
Oct 26-Nov 1	Relationships between quantitative variables correlation coefficient; linear regression models interpreting correlations & regression	Midterm 2
Nov 2-8	Reading Week	
Nov 9-15	Relationships between qualitative variables introduction to two-way tables, risks, & odds interpreting and working with risks & odds statements	

Nov 16-22	Understanding randomness & probability interpretation of probability, expected value Understanding randomness and working with probability rules	Assignment 3 Due <i>Nov 22 11:59pm</i>
Nov 23-29	Introduction to inference & interpreting confidence intervals Sampling variability & sampling distributions properties of sampling distributions; confidence intervals	Midterm 3
Nov 30- Dec 6	Hypothesis testing and significance power, effect size, type I/II errors	
Nov 7- Dec 9	Introduction of Time Series Data Introduction to the epidemiology Review	Assignment 4 Due <i>Dec 9 11:59pm</i>
Dec 11-21	<i>December Final Exam Period</i>	

Online Participation and Engagement



- Students are expected to participate and engage with content as much as possible
- Students can also participate by interacting in the forums with their peers and instructors

4. Course Materials

Recommend Materials

Utts, JM. 2015. Seeing through statistics, 4th edition. Brooks/Cole, Cengage Learning.

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. Students are responsible for checking OWL on a regular basis.



All course material will be posted to OWL: <http://owl.uwo.ca>. Any changes will be indicated on the OWL site and discussed with the class.

If students need assistance, 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.

[Google Chrome](#) or [Mozilla Firefox](#) are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click [here](#).

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Course Component	Weight	Deadlines/Due Dates
Lecture Video Quizzes	4%	Watch for deadlines on OWL
Assignment 1	5%	<i>Oct 4 11:59pm</i>
Assignment 2	5%	<i>Oct 25 11:59pm</i>
Assignment 3	5%	<i>Nov 22 11:59pm</i>
Assignment 4	5%	<i>Dec 9 11:59pm</i>
Midterm Test 1	12%	TBD
Midterm Test 2	12%	TBD
Midterm Test 3	12%	TBD
Final Exam	40%	During December exam period (Dec 11-21)

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading.

Accommodated Evaluations

- Late assessments without illness self-reports will be subject to a late penalty 10 %/day
- Late assessments with illness self-reports should be submitted within 24 hours of submission of the last illness self-report
- An assessment cannot be submitted after it has been returned to the class; weight will be transferred to the final grade
- The weight of a missed test will be transferred to final exam
- If a make-up assessment is missed, the student will receive an INC and complete the task 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. 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 Academic Accommodation for Students with Disabilities policy 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)

Academic Consideration for Student Absence

Students will have up to two (2) opportunities during the regular academic year to use an on-line portal to self-report an absence during the semester, provided the following conditions are met: the absence is no more than 48 hours in duration, and the assessment for which consideration is being sought is worth 30% or less of the student's final grade. Students are expected to contact their instructors within 24 hours of the end of the period of the self-reported absence, unless noted on the syllabus. Students are not able to use the self-reporting option in the following circumstances:

- for exams scheduled by the Office of the Registrar (e.g., December and April exams)
- absence of a duration greater than 48 hours,
- assessments worth more than 30% of the student's final grade,
- if a student has already used the self-reporting portal twice during the academic year

If the conditions for a Self-Reported Absence are *not* met, 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.

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

[https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Consideration for absences.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf)

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

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

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:

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

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).

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 Academic Calendar for details (under [Special Examinations](#)).

7. 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.

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, 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.

Participants in this course are not permitted to record the sessions, except where recording is an approved accommodation, or the participant has the prior written permission of the instructor.

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.

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. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

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

Tests and examinations in this course will be conducted using the remote proctoring service, such as Proctortrack. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some

biometric data) and the session will be **recorded**. More information about this remote proctoring service is available in the Online Proctoring Guidelines at the following link: <https://www.uwo.ca/univsec/pdf/onlineproctorguidelines.pdf>

Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. Information about the technical requirements are available at the following link: <https://www.proctortrack.com/tech-requirements/>

Professionalism & Privacy

Western students are expected to follow the [Student Code of Conduct](#). Additionally, the following expectations and professional conduct apply to this course:



- Students are expected to follow online etiquette expectations provided on OWL
- All course materials created by the instructor(s) are copyrighted and cannot be sold/shared
- Recordings are not permitted (audio or video) without explicit permission
- Permitted recordings are not to be distributed
- Students will be expected to take an academic integrity pledge before some assessments
- All recorded sessions will remain within the course site or unlisted if streamed

Copyright Statement

Please be aware that all course materials created by the instructor(s) are copyrighted and cannot be **sold/shared**. Those include materials used in tests/quizzes, midterms, and finals. Any posting/sharing of such materials in part or whole without owner's consent is considered as violation of the Copyright Act and will be considered as a scholastic offence.

In addition, online services such as Chegg are actively monitored. Any questions that are coming out during midterms and finals and are posted to an online service will be searched. Such an activity will be considered as a scholastic offence and will result in academic penalty.

8. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on add/drop 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 Student Accessibility Services (SAS) at (519) 661-2147 if you have any questions regarding accommodations.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

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>.