Statistics 1023A (Statistical Concepts)
and
Statistics 2037A (Statistics for Health)
Fall 2018 Course Syllabus

Calendar Description

Stat 1023: 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.

Prerequisites: none
Anti-requisites: Statistical Sciences 2037A/B

Stat 2037: 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. Emphasis will be placed on health-related applications

Prerequisites: none
Anti-requisites: Statistical Sciences 1023A/B

Unless you have either the requisites for this course or written 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.

Course Structure

Stat 1023A/2037A follows a ***blended*** learning format; that is, we will engage in learning and assessment through a mix of online and in-person (i.e. 'face-to-face') formats. To be successful in this course, students should expect to complete substantial independent study tasks on their own time each week, as well as attend a face-to-face session each week; the two delivery formats are complementary rather than redundant. The following table gives an overview of the split in delivery:

Online	**Face-to-Face**
• Video lectures • Assigned textbook material • Activities to collect data for face-to-face • Quizzes to assess preparedness for face-to-face • Assignment submissions	• Small and large group discussions and activities • Clicker questions as assessments for learning and motivation for discussion • Lectures • In-class assessments of learning

Course Timetable

Face-to-Face sessions: Tuesdays, 1:30 to 3:30 pm, MC 110
(listed as *Tutorial* in the Western Course Timetable)

To fully engage in and be successful in this blended course, you are encouraged to set aside approximately two (2) hours in your personal schedule each week to complete the Independent Study tasks for the week. You could select a solid two-hour block (plus time for breaks) or a couple shorter time blocks; in either case, select time(s) that you know will be consistently free in your schedule *and* reflect time when you will feel motivated to do work.

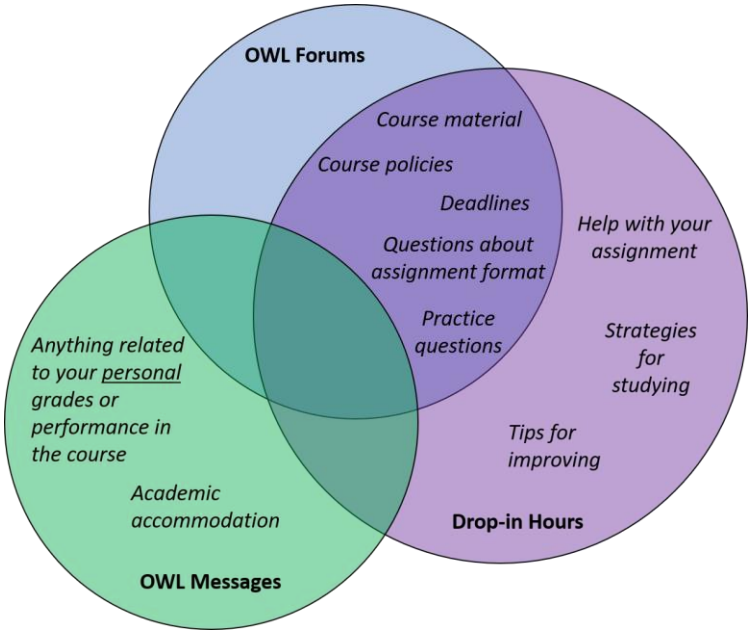
Instructor Information

Name: Jennifer Waugh
Departments: Statistical & Actuarial Sciences *and* Biology
Drop-in hours: Tuesdays, 10:30 am – 12:00 noon, in WSC 207
There is no need to make an appointment for drop-in hours; simply stop by. We collaborate with a white board on problems/questions with whomever drops in.

Email: Please use the OWL "Messages" tool on our course site; send to *Instructor Role*

What is the best method of connecting with me?

As you move through the course, you may find you have questions or need clarification about something There are several ways to connect with me; this Vehn diagram highlights the appropriate methods for some common question topics.



You can expect a response to an OWL Message or Forum posting within about 48 hours during the Monday to Friday work week. Note that Messages or Forum questions will generally not be answered in the 24-hour period before major assessments; this is meant to encourage proactive studying and help-seeking behaviour.

Be sure to check OWL announcements and your UWO email on a regular basis for news and updates related to the course.

Learning Objectives

As you embark on learning in this course, keep in mind that it is framed in terms of *statistical literacy*, rather than a *methods* course. That is, our goal is to develop a tool kit of knowledge and questions that we can draw on to help evaluate the validity and trustworthiness of research results and information, e.g. in popular media. Consequently, by the end of the course, learners should be able to:

- **LO1:** Correctly use and understand foundational vocabulary and/or concepts associated with statistics *(assessed by quizzes, activities, assignments, assessments, and exams)*;
- **LO2:** Interpret, create (with the aid of suitable applets/technology), and critically evaluate summaries of data *(assessed by quizzes, activities, assessments, and exams)*;
- **LO3:** Understand the role of chance, randomness, and 'average' in the context of statistical research design and analysis *(assessed by quizzes, activities, assessments, and exams)*;
- **LO4:** Evaluate and critique the validity of statistical research designs and conclusions *(assessed by assignments, assessments, and exams)*;
- **LO5:** Evaluate statistical information presented in media and society *(assessed by assignments, and exams)*.

Learning Resources

We will be using a variety of resources to support your learning; these resources are "required" in the sense that each student needs access to the resources to be successful in the course. However, whether that access is associated with an individual, shared by a group of individuals, or borrowed from the commons (e.g. library resources, etc.) is up to you.

Textbook: Utts, JM. 2015. Seeing through statistics, 4th edition. Brooks/Cole, Cengage Learning.
This course uses a combination of independent study and classroom-based activities to cover the course material. Some of the independent study material comes from assigned sections of this textbook. The textbook is available for purchase at the UWO Bookstore in several formats. The various formats are *briefly* described here; you are **strongly encouraged** to review the more detailed information available on the OWL course site under Course Materials→Administration.

- ***Option 1: "Aplia Access Code for Seeing Through Stats One term"*** – This is the online portal + 'ebook' version of the textbook; it provides students with access to an online copy of the textbook (a one-term subscription) plus some additional resources provided by the textbook publisher. **I am promoting this option** for two reasons: (1) it is cheaper, and (2) I have organized the online portal into distinct 'homework' modules relevant to the Independent Study tasks for our course.
- ***Option 2: "Seeing Through Statistics W/Aplia Access Code Bundle" –*** This is a hard cover copy of the textbook PLUS the online portal + ebook described under Option 1. The bookstore has labelled this as the 'Required' version by default. As mentioned, I'm promoting the other option for financial and organizational reasons. However, you may be able to find used copies of the textbook (without the Aplia access code).

Resources continued on next page…

Course website (OWL): https://owl.uwo.ca, "Statistics 2037A 200 FW18"
The OWL course site (accessible with your UWO user ID and password) will be the launching point for all online learning and assessment, as well as for major forms of communication. It is shared by students registered under Stat 1023A and Stat 2037A. The site includes:

- lecture slides (PDF format, suitable for integration into OneNote, for example, or printing);
- content for Independent Study work (e.g. lecture videos, textbook readings, etc.);
- quizzes, activities, and assignment submissions;
- communication tools (i.e. messages, forums, announcements);
- practice questions (i.e. former exam questions);

Other resources:
In addition to the two main resources listed above, we will occasionally use articles, videos, and applets available online (either free, or through the University's subscription) to supplement your learning. Of course, if you find resources that are helpful to you for this course, I encourage you to share those resources with the rest of the class!

Expectations for Students & Instructor

Many of you are taking this course because it—or an introductory statistics course in general—is required for your degree program. There is a reason for this requirement. Statistics is a science that deals with collecting, analyzing, interpreting, and presenting data; that is, statistics *is* science. However, it is a science for which many students have little experience, and the focus on the course is critical thinking and evaluation. As such, this course can be challenging. To help us maintain a safe and respectful community so that we can tackle potential challenges effectively, we should endeavor to follow these expectations:

Student Expectations	**Instructor Expectations**
a. be active and participate in class settings; b. listen and respect others (e.g. peers, instructor, and TAs) in all settings (in class, lab, and online); c. be prepared for class (e.g. by completing the relevant preparatory work or activities); d. be comfortable taking risks in your learning; e. be willing to learn from your mistakes and seek support when needed; f. be cognizant of the constraints associated with a large class (e.g. for response time in returning marks and answering questions);	a. be active and enthusiastic to facilitate/motivate student learning b. listen to and respect students' and TAs' views; c. be prepared for, and ready to begin (and end) class at the scheduled times; d. promote an inclusive and safe environment to take risks in learning; e. provide support and opportunities to learn from mistakes; f. respond effectively to student questions and concerns in a reasonable time frame; g. grade objectively, consistently, and in a timely manner;
If you have suggestions or comments on how to promote a safe and inclusive community, I welcome any feedback you are willing to offer, at any time.	

Expectations continued on the next page

In addition to the above expectations, we are a learning community within an academic setting. While it may not be immediately obvious, there are some additional expectations related to being part of an academic setting:

- ask your Instructor before you make an audio recording of class. This is a component of basic respect for their privacy and personal safety, and is in keeping with Intellectual Property rights. If you would like to make *audio* recordings of our lecture sessions, please send an OWL message to me (via *Instructor Role*)
- use materials and resources provided on OWL or through class for your *individual use* during the course. Sharing or reproducing class materials online (for free or for profit) and/or sharing materials with individuals who are not taking the course is not acceptable without first receiving permission from the owner or creator of those resources/materials.

Assessment and Evaluation

The evaluation in this course is set up to promote mastery of the material and skills by the end of the course, and to provide opportunities to learn from mistakes. To achieve these objectives, I use a flexible assessment and evaluation scheme. The baseline distribution of grades for the course initially follows the following scheme, and then it is tailored further by alternative weighting scenarios (*described below under Flexible Grading). In all cases, your final course grade will automatically be calculated to give you the **highest mark possible**.

Course Component	Weight	Learning Objectives
Course Structure Quiz	1%	-
Preparation Quizzes	5%	LO1-3
Activities	5%	LO1-3
Assignments (2)	10% total *(5% each)*	LO1, 5
*In-class Assessments (3)	9% total *(3% each)*	LO1-5
*Midterm Exam	25%	LO1-5
*Final Exam	45%	LO1-5

Flexible Grading.

The In-class assessments, and Exams are subject to reweighting at the end of the course, depending on your individual success on each of these components. Each of these components is initially worth a fraction of your final grade as outlined above. Eight (8) scenarios have been identified for how the weights of the In-class Assessments will be allocated. For each of the eight scenarios, there are also two options (A or B) for the weight of the Midterm and Final Exam. Your final course grade will ***automatically*** be calculated under each of the following scenarios for both options A and B (i.e. your final grade will be calculated 16 different ways!); whichever scenario gives you the highest final course grade will be used when submitting your course grade:

	Item	S1	S2	S3	S4	S5	S6	S7	S8
	ICA 1	3%	0%	3%	3%	0%	0%	3%	0%
	ICA 2	3%	4.5%	0%	3%	0%	5%	0%	0%
	ICA 3	3%	4.5%	4.5%	0%	5%	0%	0%	0%
A	Midterm Exam	25%	25%	26.5%	25%	29%	26%	28%	31%
	Final Exam	45%	45%	45%	48%	45%	48%	48%	48%
B	Midterm Exam	12%	12%	12%	12%	14%	13%	14%	15%
	Final Exam	58%	58%	59.5%	61%	60%	61%	62%	64%

The purpose behind this flexible grading scheme is to provide you with multiple opportunities for feedback on your understanding of course material. If you discover that your understanding is not complete, or you perform below your desired level of success during the In-class Assessments/Midterm, you still have other opportunities to improve on your achievement on the next Assessment and/or Final Exam (i.e. after you seek additional help/clarification to improve your mastery of the material). Because all assessments in this course are cumulative, the relative weighting of 'early' versus 'late' course material will be approximately equivalent under each scenario.

Course Structure Quiz.

Purpose: To motivate you to understand the course structure and policies, so you know what is expected/needed to be successful in the course

Format: Multiple choice/true-false quiz administered through OWL Tests & Quizzes. Approximately 6-10 questions. Students may use non-programmable calculators.

Details: Requires thorough understanding of the content of this course syllabus, and a careful exploration and observation of the structure and content of the OWL course website.

Grading scheme: Your mark out of 1% is calculated based on the percentage of questions answered correctly (e.g. 6/10 correct questions results in a mark of 0.6% of the possible 1%).

Accommodations: The quiz is available for approximately one week; students should endeavor to complete the quiz as early as possible in the availability period so that any problems can be dealt with accordingly. No accommodation for missing the quiz will be provided after the final deadline.

Preparation Quizzes.

Purpose:
- To assess understanding of Independent Study material/concepts in advance of upcoming Face-to-Face sessions;
- To encourage regular active engagement with course material.

Format: Multiple choice/true-false/numeric response questions administered through OWL Tests & Quizzes. Limited time to complete once quiz is started. Typically 2 to 4 questions per quiz. Students may use non-programmable calculators.

Details: Information on the testable content for each quiz is described in the quiz description on OWL. The quizzes are not intended to represent the level of difficulty or comprehension involved in In-class Assessments and/or Exams.

Grading scheme: Quizzes are graded for correct answers. The percentage of questions for which you choose the correct answers will place you in one of the six (6) categories shown in the table at right, and determines your final Preparation Quizzes mark (out of 5%).

Percentage of correct answers	Mark (out of 5%)
0	0
$0 < \% < 20$	1
$20 \leq \% < 40$	2
$40 \leq \% < 60$	3
$60 \leq \% < 80$	4
$80 \leq \% \leq 100$	5

Accommodations: Quizzes are typically available for ~36 hours; students should endeavor to complete the quiz as early as possible in the availability period so that any problems can be dealt with accordingly. The mark allocation is set up to account for occasional missed deadlines, incomplete understanding, etc. by giving you a 20% buffer on your quiz grades. If you have extenuating circumstances that make you unable to take several of the quizzes, please speak with Academic Counseling from your Faculty's Dean's Office.

Activities.

Purpose:
- To explore concepts as a precursor to class discussion/elaboration;
- To collect authentic data for use in face-to-face learning activities;
- To provide opportunities for you to reflect on your learning;
- To encourage regular active engagement with course material.

Format: The format of Activities varies; most Activities will involve following some instructions and/or collecting data, followed by submission of results in the form of a 'survey' administered through OWL Tests & Quizzes. However, other formats may be used. Students may use non-programmable calculators.

Details: Each activity will include detailed instructions for completion and submission requirements; these instructions will be provided on the OWL course site.

Grading scheme: Each Activity will be assigned points (typically based on workload) that contribute to the overall Activity grade. Points may be awarded for correctness and/or completion with reasonable responses; the specific criteria for successful completion will be described in the Activity instructions Students will be assigned their final Activity mark (out of 5%) based on the percentage of points collected out of the total across the course (e.g 25/30 points results in a mark of 4.17% of the possible 5%).

Accommodations: Activities are typically available for 36 hours, or frequently, longer. Consequently, no accommodation will be given for missed Activities. If you have extenuating circumstances that make you unable to complete many Activities, please speak with Academic Counseling from your Faculty's Dean's Office.

Assignments.

Purpose:
- To assess your understanding and application of course concepts;
- To provide an opportunity to critique and write about statistical research.

Format: Short essay (e.g. less than 2 pages) that describe and critique statistical research originally presented in popular media.

Details: You will have a choice of media story to describe and critique according to a set of instructions. More detailed instructions on format, as well as an exemplar is provided on the Owl course site under Course Materials→Assignments.

Grading scheme: Assignments are marked for correct interpretation/application of course materials, analysis, format, and creativity (where applicable). Details on the marking rubric are provided with the Assignment instructions.

Accommodations: If you are unable to submit an assignment by the due date, please speak with Academic Counseling from your Faculty's Dean's Office about academic accommodation.

In-class Assessments.

Purpose:
- To assess your understanding, application, and integration of course concepts;
- To provide no risk opportunities for feedback on your learning throughout the course.

Format: Multiple choice questions administered during specified Face-to-Face sessions, using Immediate Feedback Assessment Technique (IFaT) scratch cards. Typically five (5) questions for each Assessment. Students may use non-programmable calculators.

Details: In-class assessments are cumulative and integrate material from both the Independent Study and Face-to-Face sessions. Information on the testable content for each Assessment will be posted on OWL under Course Materials→Test Information and Resources.

Grading scheme: IFaT cards are organized to give multiple attempts at a question, narrowing down the number of possible answers with each attempt. Each question is worth 3 points if answered correctly on the first attempt; each subsequent attempt removes a potential point for the correct answer. Your mark on each In-class Assessment, therefore, depends on how many attempts it takes to select the correct answer, on a question-by-question basis. More details about IFaT cards and their grading will be described in the information provided on OWL.

Accommodations: The three In-Class Assessments are subject to the Flexible Grading scenarios described above. Consequently, students who miss one or more of the Assessments do NOT need to obtain academic accommodation for their absence(s). The weight of the missed Assessment(s) will automatically be shifted as described in the Flexible Grading scenarios table.

Exams.

Purpose: To assess your understanding, application, and integration of course concepts.

Format: Multiple choice/true false (using Scantrons), and/or short answer questions, administered on campus, outside of regularly scheduled Face-to-Face sessions. Students may use non-programmable calculators.

Details: Exams are cumulative and integrate both Independent Study material and Face-to-Face material. Information on the testable content for the exams will be posted on OWL under Course Materials→Test Information and Resources.

Grading scheme: Your mark on the exams are based on percentage of correct answers.

Accommodations: Students who miss either the Midterm Exam or the Final Exam should speak with Academic Counseling from your Faculty's Dean's Office about academic accommodation. See information in the Academic Policies section under the *Policies and Supports* segment of this document.

Required Readings

This course uses a mixture of textbook, online material, and in-class instruction to cover the course material. The following table, therefore, summarizes the *anticipated* required textbook reading for the course, broken down by topic, so you can have a better understanding of the nature of textbook use in the course. Some revisions to this list may be made (and communicated in class/on the OWL course site) as the course progresses.

Topic	***Anticipated Required Readings***	***Relevant/Suggested Reading***
Introduction to statistics and data	Section 3.5, p. 56-57	Sections 1.2 and 3.5 (p. 52-53)
Summarizing Data I	Section 7.2, p. 141-146	Chapter 7
Summarizing Data II	Section 9.1 to 9.5	Chapters 8 and sections 9.1 to 9.5
Sampling strategies and study designs	Sections 4.6 and 5.3	Sections 4.1 to 4.6, Chapter 5
Survey design	Section 3.5, p. 56-57, and p. 71	Sections 3.1-3.5
Research Ethics		Sections 26.1-26.2
Relationships between quantitative variables	Sections 10.4 and 11.3	Sections 10.3 and 10.4, 11.1 to 11.4
Relationships between qualitative variables		Sections 12.1 to 12.3
Understanding randomness & probability	Sections 14.3, 14.4, 16.1 to 16.4, 16.6, 17.2, 17.3,	Sections 14.1, 14.2, 14.4, 14.6, 16.1, 16.3. 16.4, 16.6, 17.2 to 17.5
Introduction to inference & interpreting confidence intervals		Chapter 19, p. 408-410, sections 19.3, 19.4, 20.1, 20.2, p. 438-439, 21.1, 21.4.
Hypothesis testing and significance		Chapter 22, section 23.3, 24.1 to 24.4
Critiquing Statistics in the media	Section 2.3 and 2.4	Sections 2.1 to 2.4

Policies and Supports

Comments on Assessments in Stat 1023/2037

The mark allocation (see Assessments and Evaluations, above) for this course has been structured to:

(i) recognize the workload/effort necessary to successfully complete each component,
(ii) highlight the importance and relevance to the learning objectives (i.e. from a knowledge/understanding perspective) for each component, and,
(iii) acknowledge that mastery of the course material takes time.

The mark allocation has also been organized with an awareness that individual students are not 'perfect' every day of the term; by extension, I recognize that sometimes not-so-good days might be the day of a quiz, Assessment, or the Midterm Exam. As such, the *flexible mark allocation* (both in terms of weighting for Assessments and Exams, and in the 'buffer' for Quizzes) is set up to place higher value on your better work, and reduce the value of other work. Because this flexibility is *already present in the course structure,* I will not re-weight assessment components, nor accept additional/revised assignments to accommodate perceived poor performance on an assessment item, or for absence(s) for which

accommodation has not been recommended by Academic Counseling. In addition, I do not apply special rounding rules (e.g. to meet GPA cut-offs, minimal requirements for programs/continuation, etc.) nor force the marks distribution to fit a theoretical model (e.g. Normal curve) when finalizing course grades.

Senate definitions of grades

For your reference, the Senate definition for meaning of letter grades is:

Letter Grade	*Corresponding grade range (%)*	*Definition*
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.

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.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at this website: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or supporting documentation to the Academic Counselling Office of your home faculty as soon as possible. If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in NCB 240, and can be contacted at scibmsac@uwo.ca.

For further information, please consult the university's medical illness policy at http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf

If you miss the Final Exam, please contact your faculty's Academic Counselling Office as soon as you are able to do so. They will assess your eligibility to write the Special Exam (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" (see http://www.registrar.uwo.ca/examinations/exam_schedule.html)

It is Faculty of Science policy that a student who chooses to write a test or exam deems themselves fit enough to do so, and the student must accept the mark obtained. Claims of medical, physical, or emotional distress after the fact will not be considered.

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.

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).

This course will use **CrowdMark**, an online collaborative grading and analytic platform. For information on their privacy policy, please visit their website, https://crowdmark.com/privacy

During tests/exams, proctors will inspect all personal belongings on your desk (and even your baseball cap if you are wearing one). If any items are discovered that are not permitted (e.g. any electronic device other than a non-programmable calculator, or notes) they will be confiscated and the incident will be officially reported as an academic offence. Proctors have the discretion to move students between desks during the Tests or Exam periods.

Classroom Environment

The Department of Statistical and Actuarial Sciences has adopted a "Mutual Expectations" policy governing the classroom environment and all work submitted by students. The full text of the policy can be found at: http://www.uwo.ca/stats/undergraduate/mutual-expectations.html. In summary, the policy was developed under the premise that all interactions between students and faculty should be governed by the principles of courtesy, respect and honesty.

Support Services

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 ext. 82147 for any specific question regarding accommodation.

The policy on Accommodation for Students with Disabilities can be found here:
www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_disabilities.pdf

The policy on Accommodation for Religious Holidays can be found here:
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

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.uwo.ca/uwocom/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.

Clicker Use in this Course

A "clicker" is a browser page or 'app' opened on a personal WiFi device (e.g. a smartphone, tablet, or laptop). In class, instructors can ask a variety of structured questions to which you may respond by pressing the appropriate button on your device. Individual responses are collected and summarized in a graph at the front of the room. If the instructor chooses, individual responses may also be saved for future analysis.

Clicker Responsibility

For Stat 1023/2037, we subscribe to and use clicker software produced by iClicker (https://www.iclicker.com/) because it is the company supported by Western's Technology Services and is free to registered students. A student choosing to use a clicker will be responsible for (a) bringing their own device to use as a clicker, and (b) setting up their iClicker account correctly. Note that the course and instructor is not responsible for WiFi failure.

Clicker Academic Record

Your clicker use will be recorded in lecture and will become part of your academic record. As such, your clicker record will be afforded the same degree of security, confidentiality, and transparency that is customary for test marks, etc.

Research

Your clicker data will not be used for any non-academic or research purpose without your consent. For any research study in which you are invited to participate, you will be provided with a Letter of Information with an opportunity to give or withhold consent. Such research will not replace the usual end of term Student Questionnaire given by the University.

Academic Integrity

Use of a clicker associated with an identity other than your own is an academic offense. Granting permission for someone else to submit answers on your behalf in your absence is an academic offence. In a test, lab, lecture, or tutorial, possession of more than one clicker device, or one associated with the identity of another student, will be interpreted as intent to commit an academic offense and will be reported as such. This means that it will be considered an academic offense to answer a clicker question using an account other than your own.

Course Schedule

The following schedule is *tentative*; some adjustments may be made as the course progresses, depending on the rate at which individual topics are covered. The 'Due Dates' that are fixed are the dates of the In-Class Assessments, Midterm, and Assignments. For Quizzes and Activities, the due dates are tentative; as well, the time required for completion is a rough estimate only and may vary from student to student. For Quizzes, chapters listed are *relevant* to the quizzes; the quiz may not test on the entire chapter. Finally, some additional Activities may be added throughout the course; these will be announced repeatedly during class and clearly documented (with deadlines) through the OWL site.

IS = independent study; *F2F* = Face-to-face session

Week	Course Topics	'Due Dates'
Sept 10-14	*F2F:* Introduction to course, statistics, and data *This is not just a typical 'introductory' class; we will engage in meaningful discussion that will set the tone for future activities. Please attend.*	*Activity:* Data collection 1
Sept 17-21	Summarizing Data I *IS:* Measures of shape, centre, & spread; 5-number summary *F2F:* Interpreting & evaluating descriptive statistics	*Activity:* How will you study for 1023/2037? *Quiz 1:* Summarizing Data I **Course Structure Quiz due**
Sept 24-28	Summarizing Data II *IS:* Normal distributions & standardized scores; graphical summaries *F2F:* applying the Empirical Rule; misleading graphs	*Activity:* Gettysburg Address *Quiz 2:* Summarizing Data II
Oct 1-5	Sampling Strategies and Study designs *IS:* vocabulary and designs for sampling & studies *F2F:* selection bias, confounding, & principles of experimental design	*Activity:* Data collection 2 *Quiz 3:* Sampling strategies *Quiz 4:* Study designs **Oct 2 at 1:30 pm: In-class Assessment 1**
Oct 8-12	***No classes (Thanksgiving/Fall Study Break)***	
Oct 15-19	Survey design *IS:* variation and surveys *F2F:* measurement bias; catch-up from Sampling and Study Design	*Activity:* Media story, part 1
Oct 22-26	Research Ethics *IS:* introduction to core Canadian principles and consent in ethics *F2F:* issues with consent and equity	*Quiz 5:* Research Ethics **Oct 23 at 1:30 pm: In-class Assessment 2**
Oct 29-Nov 2	Relationships between quantitative variables *IS:* correlation coefficient; linear regression model *F2F:* interpreting correlations & regression	*Quiz 6:* Quantitative variables **Nov 2: Midterm Exam, 7:00 pm**

Nov 5-9	Relationships between qualitative variables *IS:* introduction to two-way tables, risks, & odds *F2F:* working with and interpreting risks & odds statements	*Activity:* Data collection 3 *Activity:* Exam wrapper *Quiz 7:* Qualitative variables **Assignment 1 due**
Nov 12-16	Understanding randomness & probability *IS:* interpretation of probability, expected value *F2F:* Understanding randomness, fallacies and personal probabilities	*Activity:* Sampling distribution of sample means *Quiz 8:* probability *Activity:* Media story, part 2
Nov 19-23	Introduction to inference & interpreting confidence intervals *IS:* Sampling variability & sampling distributions *F2F:* properties of sampling distributions; confidence intervals	*Quiz 9:* Introduction to inference **Nov 20 at 1:30 pm: In-class Assessment 3**
Nov 26-30	Hypothesis testing and significance *IS:* Hypothesis testing vocabulary & process *F2F:* Chips Ahoy! Hypothesis test; power, effect size, type I/II errors	*Activity:* Chips Ahoy! *Activity:* Looking forward *Quiz 10:* Hypothesis testing
Dec 3-7	Capstone: Critiquing Statistics in the media *IS:* Seven critical components *F2F:* Application of seven critical components; catch up from previous week	*Activity:* Reflection **Assignment 2 due**
Dec 9-21	***December exam period (do not book travel until exam schedule is finalized)***	