

# Course Syllabus\_ Introduction to Stats

## Course Description

Introduces descriptive and inferential statistics and data analysis strategies. Topics include experimental design, data visualization, probability, correlation/regression and analysis of variance. Online learning and weekly tutorials provide practice in computation, interpretation and communication of statistical findings, and large class sessions and individual drop in assistance ensure mastery. Applications appropriate to diverse fields of study will be explored.

## Method of Delivery

This course follows a ‘blended model’, meaning that course material will be available in weekly online video lessons and one face to face lecture per week, with opportunities to further explore and discuss this material in the weekly face to face labs. Drop in tutorials will also be available where students can come without appointment for assistance with course material. The components of this course have been designed to maximize your opportunities to learn in an engaging and supportive environment.

## Learning Outcomes

After completing this course, students should have the knowledge and skills to do the following:

1. Identify the features of a data set to determine how best to summarize and display it visually.
2. Choose the appropriate statistical test and provide the rationale for its selection.
3. Compute basic parametric statistical tests to test hypotheses.
4. Interpret the results of statistical tests and data software output to be able to draw valid conclusions.
5. Apply knowledge of statistics and research design (e.g., sampling) to critically evaluate research findings.

## Suggested Time Commitment

To complete the online activities, self assessments, and course activities, students can expect to spend on average, about **9** hours per week on the course.

Online lessons	2 - 4.5 hours (as needed)
Lecture	1 hour

Tutorials	1.5 hours
Software Skills Primers	1 hour
Additional practice	as needed
Drop-in Sessions	0-2 hours

Course email: [In2Stats@queensu.ca](mailto:In2Stats@queensu.ca)

Use email for **personal** issues and questions. Examples: academic accommodations, marking issues, schedule re-arrangements, make-up exams.

### Moodle Announcements and News Forum

The instructor will use the Announcements forum to post news to the class. Copies of the announcements are also sent to your **Queen's email account**, which students must check regularly throughout the course.

### Moodle Question and Comment Forum

Use the Moodle forum to post questions of general interest to the class. The instructors, TAs (if any), and other students in the class can reply to the posts in this forum. Copies of the forum posts are also sent to your Queen's email account, which students must check daily throughout the course.

### Email vs Forums

- **Email:** anything that affects **mostly you**, and not other students.
- **Forums:** used for any questions about the **material**, and any course process that might be of interest to the entire class.

Examples: "When is the next test?" or "How do I make a histogram in R?" Anything that might be of interest to **several students besides yourself**, or to the whole class.

### Required materials

Top Hat Software

At your earliest convenience, please register with the interactive teaching platform TopHat, which we will be using during lecture.

- Website: <https://tophat.com/>
- Cost: \$24/4 months
- University name: Queens University
- TopHat course code: **012051**

- There is no required textbook for this course. All course material will be available in Moodle.

### Arts and Science Calculator Policy

Calculators acceptable for use during quizzes, tests and examinations are intended to support the basic calculating functions required by most Arts and Science courses. For this purpose, the use of the **Casio 991** series calculator is permitted and is the **only approved calculator for Arts and Science students**. This inexpensive calculator sells for around \$25 at the Queen's Campus Bookstore, Staples and other popular suppliers of school and office supplies.

### Assessment

Assessment	Location	Weight	Content Elements
Participation via Tophat	Lecture	5%	Module videos, Lecture case studies
Software Skills Quizzes (Weeks 3, 5, 9)	Tutorial	6%	Software primer
Module Quizzes (12 total)	On-line	6%; 0.5% each (*lowest score will be dropped)	Module videos, Software primer
Tutorial Activities (9 graded labs)	Tutorial	18% (*lowest tutorial will be dropped)	Incorporates all content
Inquiry-based Project	Tutorial/outside of class	15%	Incorporates all content
Term Tests (2 x 10%) (Weeks 6 & 10)	Lecture	20%	Module videos, Lecture, Module practice problems, elements of the tutorials
Final Exam (during final exam period)	TBD	30%	Module videos, Lecture, Module practice problems, elements of the tutorials

\*Your lowest quiz and lab mark will be dropped to allow for situations where you may be ill or have other University activities that prevent you from completing the work.

## Participation During Lectures

To facilitate interaction among students and professor during the weekly case-study lectures, we will use the online interactive teaching platform tophat ([www.tophat.com](http://www.tophat.com)). This will allow you to respond to questions and discussion points in lecture. Participation marks are awarded for both responding to tophat questions and for providing the correct answer to selected 'challenge' questions.

We recognize that there can be technical issues using Tophat in a lecture hall, or that you might miss a lecture due to illness. To accommodate these issues, we will drop your lowest 25% of your Tophat scores.

*As an example: let's say by the end of the course there are 40 marks worth of TopHat questions that have been asked, and you've scored 25. However, you're concerned because you were sick for one lecture and your laptop had trouble connecting to TopHat during another. To provide everyone with leeway for these missed TopHat opportunities, we will mark your score out of 30, not 40. So your mark would be  $25/30 = 0.833$ . This then gets multiplied by 5 (the total marks allocated to TopHat questions) to yield 4.16 marks.*

## Software Skills Quizzes (Weeks 3, 5, 9)

Software Skills quizzes will be during Weeks 3,5,9. These are timed quizzes taken at the start of tutorial that are designed to evaluate your skills in Microsoft Excel and R based on what you've been taught in the preceding tutorials.

- Quiz 1 (week 3) covers content from Software Primers 1-3
- Quiz 2 (week 5) covers content from Software Primers 1-4
- Quiz 3 (week 9) covers content from Software Primers 1-7

## Module Quizzes

There are 12 quizzes, each open for a week. The quizzes will consist of multiple-choice questions based on the weekly material from module videos, self-assessment and software primers (when applicable). The quiz will open on the Monday of each week (with the exception of week 1) and will be due the following Monday by 10 am. You can take the quiz as many times as you like. Your highest mark will be recorded as your mark for the quiz.

To allow for situations where you may be ill, have a family emergency, or have other University activities that prevent you from completing the work, we will drop your lowest quiz mark when calculating the quiz component of your final grade (i.e. grade will be based on 11/12 quizzes).

## **Tutorial Activities**

Tutorial Activities are performance-based activities designed to reinforce concepts from all aspects of the course. These activities are intended to help you see the utility of statistics in your respective discipline. An outline of each activity will be posted on Moodle by the Monday before your tutorial. You must attend the same tutorial time each week. During the first 2 weeks of term, you can change your tutorial time on SOLUS if necessary. But after the 1<sup>st</sup> 2 weeks of class, you can no longer switch tutorial times for any reason.

Religious observances that conflict with your tutorial time must be declared by the **end of September** to [In2Stats@queensu.ca](mailto:In2Stats@queensu.ca)

To allow for situations where you may be ill, have a family emergency, or have other University activities that prevent you from completing the work, we will drop your lowest tutorial mark when calculating the tutorial component of your final grade (i.e. grade will be based on 8/9 tutorial activities).

## **Inquiry-based Project**

This project is designed to give you the opportunity to collect and analyze your own data on a topic that's of interest to you. The Teaching Assistants will give you detailed information about the project over the term, and you will have some tutorial time dedicated to working on the project.

## **Term Tests**

The two term tests (2 x10%) will be written **during lecture** in **Weeks 6** and **10**. The first term test covers material Modules 1-4 and term test 2 covers materials from Modules 1-8 with emphasis on Modules 5-8. Term tests will be multiple choice and short answer. Each term test will include material from the modules videos, lectures, module practice problems and elements of the tutorials.

## **Proctored Final Exam**

The Final Exam is three hours in length and includes multiple-choice and short answer questions based on the material from the entire fall term, including all modules videos, lectures, module practice problems and elements of the tutorials. Exam dates: The specific dates for each exam will be announced later in the term by the Registrar's office. Once the exam schedule has been finalized the exam date will be posted on your SOLUS account.

## Academic Integrity

Academic integrity is constituted by the five core fundamental values of honesty, trust, fairness, respect and responsibility (see [www.academicintegrity.org](http://www.academicintegrity.org)).

These values are central to the building, nurturing and sustaining of an academic community in which all members of the community will thrive. Adherence to the values expressed through academic integrity forms a foundation for the "freedom of inquiry and exchange of ideas" essential to the intellectual life of the University.

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments conform to the principles of academic integrity. Information on academic integrity is available in the Arts and Science Calendar (see Academic Regulation 1), on the Arts and Science website (see <http://www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations/regulation-1>), and from the instructor of this course. For current policy updates visit: <http://www.queensu.ca/artsci/about/academic-integrity>

Departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery and falsification, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulation on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.

### **Copyright of Course Materials**

This material is copyrighted and is for the sole use of students registered in this course. This material shall not be distributed or disseminated to anyone other than students registered in this course. Failure to abide by these conditions is a breach of copyright, and may also constitute a breach of academic integrity under the University Senate's Academic Integrity Policy Statement.

### Grading Method

All components of this course will receive numerical percentage marks. The final grade you receive for the course will be derived by converting your numerical course average to a letter grade according to [Queen's Official Grade Conversion Scale](#):

#### *Queen's Official Grade Conversion Scale*

<b>Grade</b>	<b>Numerical Course Average (Range)</b>
A+	90-100
A	85-89
A-	80-84
B+	77-79
B	73-76
B-	70-72
C+	67-69

C	63-66
C-	60-62
D+	57-59
D	53-56
D-	50-52
F	49 and below

### **Students with Disabilities**

Queen's University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact the Disability Services Office (DSO) and register as early as possible. For more information, including important deadlines, please visit the DSO website at <http://www.queensu.ca/hcds/ds/>

If you require accommodation or think you might, please contact [In2Stats@queensu.ca](mailto:In2Stats@queensu.ca) as soon as possible to make the appropriate arrangements.

### **Religious Accommodations**

If you are unable to write an exam due to faith observance, please contact the Course Coordinator at [In2Stats@queensu.ca](mailto:In2Stats@queensu.ca) to make alternate arrangements.

Student Supports

### **Academic Support**

Drop-in Help Sessions

Mac Corry D207  
Monday-Thursday 4:30-7:30

Student Academic Support Services (SASS)  
<http://sass.queensu.ca/>

General Library Services  
<http://library.queensu.ca>

### **Personal Support**

When needed, you are encouraged to contact the [Queen's counselling service](#) as they provide a range of helpful services for students.

### **Technical Support**

Contact CDS: [cds@queensu.ca](mailto:cds@queensu.ca) or phone

OR

Submit your problem to ITS: <https://www.queensu.ca/its/forms/itsc/helpform/> or phone .