

## Course & Instructor Information

### STA288H1 – Statistics and Scientific Inquiry in the Life Sciences

Lecture Section	Lectures & Tutorials/Labs
LEC0101	Tuesdays 11am -1pm in WB116 Thursdays 11am-1pm in WB116 or RW 107/109*

\* Depending on the week, you will have lecture, lab or tutorial Thurs 11-1pm. Refer to the schedule on the last pages of this syllabus and Quercus for information about the schedule.

#### Dr. Bethany White

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## Instructor Contact Information & Office Hours

All course content or course administration questions must be posted to Quercus Discussions or brought to office hours. These types of inquiries will not be addressed over email. Any messages of a more personal nature (e.g., providing medical documentation for a missed lab assignment) should be emailed to **both** instructors. Be sure to include the course number (i.e., STA288 and your UTORid in your email subject line) and send to both instructors' utoronto emails listed above OR through the Quercus Inbox. You can expect a response within about 48 hours (Monday-Friday).

**Dr. White's STA288 Office Hours:** Tuesdays after class (around 1pm)-3pm in SS 6006  
unless otherwise indicated on Quercus

**Dr. Singh's STA288 Office Hours:** Thursdays after class (around 1pm)-3pm in MSB 7208  
unless otherwise indicated on Quercus

## Calendar Description

Introduction to statistics and its connection to all stages of the scientific inquiry process. Issues around data collection, analysis and interpretation are emphasized to inform study design and critical assessment of published research. Statistical software is used to conduct descriptive and inferential statistics to address basic life sciences research questions.

**Prerequisite:** BIO230H1/BIO255H1

**Exclusion:** STA220H1, PSY201H1, GGR270H1, ECO220Y1, ECO227Y1, SOC202H1, EEB225H1, HMB325H1, STA248H1, STA261H1, PCL376H1, STA215H5, STA220H5, STAB22H3

## Course Learning Outcomes

In this course you will:

- See the relevance of statistical issues in all stages of the life sciences research process.
- Select appropriate statistical methods to address basic life sciences research problems.
- Use statistical software to explore data and create numerical and graphical summaries that address life sciences research problems.
- Use statistical software to conduct appropriate statistical inference procedures (e.g., compute p-values, effect sizes, confidence intervals) to address a life sciences research problem.
- Draw scientific conclusions from graphical and numerical summaries of life sciences data and results of inferential procedures (e.g., p-values, effect sizes, confidence intervals).
- Identify strengths and weakness in study designs and analyses in published life sciences research.
- Design studies to address basic life sciences research problems.
- Recognize when standard statistical procedures are not appropriate and know to seek statistical expertise early in the research process.

## Textbook

**Practice of Statistics in the Life Sciences (4th edition) - Baldi and Moore. W. H. Freeman and Company.**

We highly recommend this textbook to help support your learning in this course. There are three purchasing options through the Bookstore (please see below). Options 2 and 3 below include a print version of the book as well, if that is your preference. Please note, however, that the print version is not required. The textbook is available bundled with online resources. SaplingPlus is the publisher's learning system that includes access to an electronic version of the textbook as well as textbook resources and useful practice problems. In addition, we will be using iClickers in lecture for participation grades and to provide feedback on your learning. *There is flexibility in the grading scheme so that you do not need to use an iClicker if you do not wish to do so.* Access to an iClicker Cloud subscription, which you can use to participate in iClicker questions on any device with internet access, is bundled with options 1 and 2 below. If you would prefer you can use a physical iClicker device to participate in class. These are also available for purchase at the Bookstore if you do not have one already for another class.

1. *Recommended:* E-copy of the textbook (SaplingPlus subscription) + iClicker Cloud bundle (ISBN# 9781319268602)
2. Loose-leaf copy of the textbook + e-copy of the textbook (SaplingPlus subscription) + iClicker Cloud bundle (ISBN# 9781319268640)
3. Loose-leaf copy of the textbook + e-copy of the textbook (SaplingPlus subscription), no iClicker Cloud (ISBN# 9781319215361)

## Statistical Software - R

We will be using RStudio Cloud (<https://rstudio.cloud/>) in this course – there is no charge for this in STA288. A direct link to our shared RStudio Cloud space is

[https://rstudio.cloud/spaces/44532/join?access\\_code=3Aq671Dk%2FggENVSHs7S323jl7fnluytJCn0SRKTD](https://rstudio.cloud/spaces/44532/join?access_code=3Aq671Dk%2FggENVSHs7S323jl7fnluytJCn0SRKTD).

Alternatively, both R and R Studio (both free-of-charge) can be downloaded and installed on your own machine. R is an open source statistical package that is widely used in academia, research and industry and is quickly becoming a standard platform. It is available for download from: <http://cran.ca.r-project.org> for use on Windows, Mac OS, and Linux (there is also a version for use on Android). R Studio provides a nice interface for R and provides some very useful functionality.

Information on how to get set up on RStudio Cloud, and if you wish, to download and install R and R Studio on your computer, is posted on Quercus. You will need to be familiar with R code and output and will need to generate and interpret R code/output on your STA288 lab assignments and project.

## Quercus Course Site

Direct link to our course (you will need to sign in with your UTORid and password):

<https://q.utoronto.ca/courses/139211>

It is your responsibility to check Quercus regularly and to monitor your utoronto email inbox for messages about the course. Important announcements, information about how to get set up with iClickers/iClicker Cloud and R/RStudio, information about assessments, help (via Discussions and office hours), your grades, etc. will be on Quercus and several course assessments will need to be submitted through this site. Outline lecture slides will also be posted there in .pdf format, 1 slide per page only, by 11:59pm the night before lecture. Alternative file formats will not be available. *Note that complete slides/lecture material used in class will not be posted or distributed in any form under any circumstances.*

**The Discussions tool is enabled on Quercus.** Direct link: [https://q.utoronto.ca/courses/139211/discussion\\_topics](https://q.utoronto.ca/courses/139211/discussion_topics) questions there and respond to your peers' questions about course content (e.g., lecture, readings, practice questions, etc.) or general course administration. To make a posting, click on the +Discussion button on the top right of the page. Be sure to use an informative subject line to make our Discussions easy to follow and use. Quercus Discussions will be monitored on a regular basis. If you email your instructors with a course content or general administration question, you will be directed to Quercus Discussions. This is a public (to the class) Discussion Board and an extension of our classroom learning community so please be respectful of one another. Derogatory, discriminatory, or otherwise inappropriate language or topics will be removed and dealt with at the instructors' discretion.

## Computing Labs & Tutorials

There will be four (4) 2-hour computing labs and four (4) mandatory 2-hour tutorials during the term as well as a Lab 0 to introduce you to the RStudio computing environment:

**Labs** – The purpose of these computing labs is to provide you with hands-on experience using the statistics Software (R and RStudio) to summarize data and to run statistical procedures and to extract meaning from results. There will be interactive videos that you will need to work through before attempting the lab questions. The purpose of these video modules is to introduce the R code and review the methods relevant to that particular lab. Completion of each of these video modules is counted toward part of your lab assignment grade. **Lab 0 will be held in class (WB116) on Jan 21.** You are strongly encouraged to bring a laptop to class (if you have one available) to work through the exercises introducing you to the RStudio environment and the workflow of the labs and lab assignments during this class. Your first lab assignment will also be due through Quercus that day. Although not mandatory, attendance at the other four labs in RW 107/109 is recommended because you will have access to support from an instructor and TAs as you work through the assignment problems. We will not be available to help with lab assignments outside of lab period. This said, if you are comfortable with independently working through the lab questions without this additional support, you may work on the assignment questions on your own. Regardless of whether or not you attend lab, you must submit the lab assignment through Quercus by 11:59pm on the day of your lab. The lab schedule is included on the last pages of this syllabus. More information about the labs and the lab assignments will be posted on Quercus. Lab assignment questions will be posted on our shared workspace n RStudio Cloud the Monday of your Section's lab weeks.

**Tutorials** – The purpose of these tutorials is to reinforce concepts from class and to support your progress with the course project. During these tutorials, we will revisit the more challenging concepts discussed in previous classes and you will have an opportunity to work with your group members on your course project with support from an instructor and TAs. These tutorials are important to your learning and your group's project progress so attendance is mandatory. Attendance will be tracked and you will need to submit a post-tutorial reflection survey by 11:59pm the day of your tutorial in order to earn the 1% attendance/participation grade for that tutorial. The tutorial schedule is included on the last pages of this syllabus.

**Your lab/tutorial schedule will depend on your Section – your lab section (i.e., 1 or 2) will be randomly assigned and posted for you on Quercus Grades. You must attend your assigned tutorials and labs at the location posted for you on Quercus. There are no make-ups. You cannot earn credit for attending another location/time/week.**

## Questions & Additional help

Have a course-related question? Need extra help with the material? Here are some options:

- **Have a question about STA288 course material, R, or general administration of the course?**
  - Review the questions already posted on the Quercus Discussions and if your question hasn't already been addressed, post it there with an informative subject line.
  - Visit the instructor's office hours. Note that the TAs will not be available by email or for extra help outside lab/tutorials or any office hours they hold.
- **Need to reach the instructors about a private or personal matter (e.g., illness, grades)?** Email the instructors at their utoronto.ca email addresses OR through the Quercus Inbox – do not post this on Quercus Discussions! ***E-mail should only be used for emergencies or personal matters and should include the course (STA288), and your UTORid or student number.*** If you email a question to the instructors about course material or course administration, then you will be asked to post your question on Quercus Discussions – these types of questions will not be answered by email.

## Grading Scheme & Assessment Information

Your course grade will be automatically calculated using the grading scheme that gives you the highest possible grade based on completion of participation and/or assignments:

Assessment	Scheme 1	Scheme 2
In-class participation (iClickers/iClicker Cloud)	5%	0%
Attendance/participation in tutorials (includes attendance + post-tutorial reflection survey due 11:59PM on your tutorial day)	4% (1% for each)	4% (1% for each)
Completion of Lab 0 Assignment (due 11:59PM Jan 21)	1%	1%
Lab assignments (due 11:59 PM on your lab day)	24% (4x6% each)	24% (4x6% each)
Course project – research proposal	6%	6%
Course project – research report	20%	25%
Final Exam	40%	40%

*No special rounding rules or individual grade adjustments (e.g. to meet GPA cut-offs, minimal requirements for programs, etc.) will be used to calculate course grades. No special reweighting of assessments or extra work will be accepted to account for perceived poor performance, nor to account for any assessment(s) that have been missed without accommodation. There are no exceptions to these policies.*

### iClickers/iClicker Cloud

iClickers will be used to promote engagement and provide feedback on your understanding during classes as well as to provide you with credit on your lecture participation. Note that iClicker/iClicker Cloud participation is optional – an alternate grading scheme is available for students who do not wish to participate this way (see Grading Scheme above). You will automatically receive the higher of the two grading schemes even if you choose to participate in some of the iClicker questions.

iClicker questions will be asked during lecture. The proportion of questions you answer (starting the 3<sup>rd</sup> week of classes) will determine the fraction of the available participation grade (5%) that you earn, as shown in the table on the right. There will be around 3 clicker questions per class. However, some classes will have more or fewer questions. Clicker participation only requires that you try; you do not have to get the questions correct to earn this part of your course grade. Notice that you can miss up to 25% of the clicker questions for any reason without affecting your grade.

**Due to this flexibility, there is no accommodation for missed clicker participation for any reason (e.g., legitimately missed lectures, technical problems, incorrectly registered iClicker/iClicker Cloud).**

% Questions answered	Class Participation Mark (/4%)
0%	0%
$0 \leq \% \text{ answered} < 25$	1%
$25 \leq \% \text{ answered} < 50$	2%
$50 \leq \% \text{ answered} < 75$	3%
$75 \leq \% \text{ answered} \leq 100$	4%

It is your responsibility to register your iClicker device or to set up your iClicker Cloud account correctly (information is posted on Quercus) to ensure that your clicker participation is recorded properly. **Do not send iClicker responses in for someone else or ask someone else to do so for you.** Use of an iClicker device or iClicker account associated with a UTORid other than your own or granting permission for someone else to submit answers on your behalf in your absence are academic offences and will be dealt with as such.

## Tutorial Attendance/Participation

There will be four (4) mandatory tutorials during the semester (schedule on the last pages of the syllabus). To earn the 1% toward each tutorial, you must be present in tutorial and sign the sign-in sheet, **and** complete/submit a post-tutorial reflection survey through Quercus by 11:59PM on your tutorial day. *There are no extensions nor make-ups available for tutorial attendance/participation.*

*Refer to the “Missed Assignments and Tutorials” section below for information on how to request accommodation for a missed tutorial and what accommodations may be possible.*

## Lab Assignments

There will be four (4) equally-weighted assignments to be completed **independently** (no collaboration permitted) and submitted through Quercus by 11:59PM on lab days. The schedule is included on the last pages of the syllabus. Assignment questions will be posted on Quercus no later than the Monday of your lab week. Assignments must be completed and submitted in the correct format(s) through the appropriate Quercus assignment by the deadlines. *There are no extensions nor make-ups available for lab assignments. **Late assignments and assignments in other formats or submitted in different ways (e.g., over email) will not be accepted.*** Although attendance/participation in lab is not necessary to earn credit for your lab assignment, you will have support from your instructor and TAs during lab. This level of lab assignment support will not be available at other times.

*Refer to the “Missed Assignments and Tutorials” section below for information on how to request accommodation for a missed lab assignment and what accommodations may be possible.*

## Course project

Understanding biological research involves studying not only data, but the published biological context, and considering important statistical issues related to design and analyses. Therefore, in STA288 you will have the opportunity to engage in collaborative research with a group of 4-5 people in the same lab/tutorial section (groups will be formed during tutorial).

**Group project proposal** - The research proposal (*due through Quercus 11:59PM Feb 27*) will identify a life science/biology related research question based on a review of the literature, and describe how a study could be designed, and how data would be collected, analyzed and interpreted. All group members are expected to contribute to the proposal equally and provide an outline their involvement in this proposal.

**Group project report** - Your group will follow up their initial research proposal by studying a virtual population. You will be given access to The Islands (<http://islands.smp.uq.edu.au/login.php>) – an online environment that has been created by the University of Queensland that allows for data collection from a virtual population. Within your group, the final group project will expand on the initial research proposal, and you will conduct the study (being sure to incorporate the feedback provided on your proposal), and present your design, analysis and research findings in a written group assignment *due through Quercus 11:59PM Apr 2*. All group members are expected to contribute to the project equally and provide an outline their involvement in the project. Information on how individuals' contributions to the group project will be assessed will be provided on Quercus.

There will be no extensions on the research proposal or project report under any circumstances. Late proposals/projects will not be accepted. More information on the research proposal and project will be posted on Quercus.



## Final exam

There will be a **3-hour exam (combination of multiple-choice and written answers)** scheduled but the Faculty of Arts and Science during the April exam period. You must bring your student identification to the final exam. Information on coverage, along with some sample questions will be posted on Quercus in advance.

**Final exam conflicts and petitions for a deferred exam must be brought to the Faculty of Arts and Science, not your instructor.** Information on how to request a deferred exam due to illness or another valid reason is available at: <https://www.artsci.utoronto.ca/current/faculty-registrar/petitions/common-petitions>

## Calculators

Students may find a non-programmable calculator to be useful for the final exam. Any basic calculator will be sufficient (no special functions are necessary). Calculators on phones or other devices equipped to communicate with the outside world (for example, through the internet or cellular or satellite phone networks) will not be permitted during the final exam.

## Marking concerns with Assignments

Any requests to have an assignment regraded must be made in writing directly to your instructors at bethany.white@utoronto.ca **AND** jastaran.singh@mail.utoronto.ca **within one week** of the date the marks were posted on Quercus. To be considered, your message **must** clearly identify the question you have concerns about, contain a detailed justification for your concern and make specific references to your answer, the feedback you've received and to the relevant course material. Keep in mind that it is possible for your assignment grade to go down if the regraded mark is lower than your original assignment grade.

## Accommodations for Missed Assignments and Tutorials

- If a lab assignment or tutorial is missed for a valid medical reason, you must email your instructors immediately, then submit the University of Toronto Verification of Student Illness or Injury form (<http://www.illnessverification.utoronto.ca>) to your instructors within **one week** of the lab/tutorial date. The form will only be accepted as valid if the form is filled out according to the instructions on the form. **The form must indicate that the degree of incapacitation on academic functioning is moderate, serious, or severe in order to be considered a valid medical reason for missing assignments and cover the lab/tutorial date in order to be deemed valid. If the form is not received within one week of the lab/tutorial, or the form indicates that the degree of incapacitation on academic functioning is negligible or mild or does not cover the lab/tutorial date then this will NOT be considered a valid medical reason and 0% will be recorded for the missed assignment/tutorial.**
- Other reasons for missing a lab assignment/tutorial will require **prior** approval by your instructors. If approval is not granted **in advance** for non-medical reasons then 0% will be recorded for the missed assignment/tutorial.
- Note: If you submit a lab assignment, it will be assumed that you deemed yourself fit enough to do so and your grade will stand as calculated. No accommodation will be made based on claims of medical, physical, or emotional distress ***after*** the fact.
- **Accommodation for missed assignments and tutorials** - There are no make-ups for lab assignments or tutorials. If accommodation is granted by the instructors for a missed assignment or tutorial, the weighting for that assignment/tutorial will be shifted to your final exam; otherwise 0% will be recorded for your missed lab assignment/tutorial.

## Academic integrity

You are responsible for reviewing and understanding the content of the University of Toronto's Code of Behaviour on Academic Matters at <http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>.

Academic offenses will be taken very seriously and dealt with accordingly. For all of the assessments in this course, submitting another student's answer(s) as your own, or providing your own answer(s) to another student for them to submit as their own is considered as an academic offense and will be reported as such. If you have any questions about what is or is not permitted in this course, please do not hesitate to contact any of the instructors in the course.

## Intellectual Property Statement

Course material (i.e. lecture slides, assignments, sample final exams and other supplementary course material available on Quercus) is the intellectual property of your instructors and is made available to you for your personal use in this course. Sharing, posting, selling or using this material outside of your personal use in this course is **not** permitted under any circumstances and is considered an infringement of intellectual property rights.

**No videotaping of lectures will be permitted under any circumstances.** If you would like to make an audio recording of the lectures in this course to help your learning, you **MUST** ask permission from your instructors in advance. According to intellectual property laws, not asking permission constitutes stealing.

## Accessibility Needs

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodation, please feel free to contact Accessibility Services at (416) 978 8060; <http://accessibility.utoronto.ca>

## How to Succeed in this Course

- Read this course syllabus carefully and in its entirety and understand the course policies.
- Attend and participate in class regularly and take notes (obtain notes from a classmate for any missed classes).
- Do and submit lab assignments on time and take advantage of the support available to you during labs.
- Attend and participate in tutorials and complete/submit the post-tutorial reflections.
- Regularly review class notes and read the textbook and associated online resources such as the recommended SaplingPlus activities.
- If you find that you are having trouble with concepts, please seek help as early as possible on Quercus Discussions or in office hours.
- Do not try to memorize the biological pathways – these are useful reminders and may help set the concepts for problems as well as help you remember related topics (i.e. provide context) on the final exam, but will not be tested separately – this is a statistics and scientific design course.
- Practice, practice, practice! Work through at least some of the recommended textbook/SaplingPlus exercises each week to make sure you understand the basic concepts. You need to study and do practice problems frequently (not just in the week before the exam) to keep up in the course.
- Take advantage of the help available & ask questions (lectures, labs, tutorials, office hours, Quercus Discussions).



## Course Schedule

This is our tentative schedule for course topics. Some adjustments may be made as the course progresses, depending on the rate at which individual topics are covered. There will be recommended textbook problems posted on Quercus.

Week	Tentative topic schedule (See Quercus for up-to-date weekly topics and resources)	Date	Lecture/Tutorial/Lab Schedule & location*	Important reminders & Due Dates
Jan 6-12	Introduction to the Course & Summarizing Data	Tues, Jan 7	Lecture 11am-1pm, WB116	
		Thurs, Jan 9	Lecture 11am-1pm, WB116	
Jan 13-19	Summarizing Data (continued)	Tues, Jan 14	Lecture 11am-1pm, WB116	
	Sampling & Study Design	Thurs, Jan 16	Lecture, 11am-1pm, WB116	
Jan 20-26	Introduction to RStudio – Lab #0	Tues, Jan 21	Lecture, 11am-1pm, WB116 (both Sections) - <i>bring a laptop or internet-enabled device if possible</i>	<b>Lab 0 Assignment</b> (both sections) due 11:59PM Jan 21
	Lab/Tutorial #1	Thurs, Jan 23	<b>Lab #1</b> (Section 1), 11am-1pm, RW 107/109 <b>Tutorial #1</b> (Section 2), 11am-1pm, WB116	<b>Lab 1 Assignment (Section 1) &amp; Post-tutorial reflection survey (Section 2)</b> due 11:59PM Jan 23
Jan 27-Feb 2	Sampling & Study Design (continued)	Tues, Jan 28	Lecture, 11am-1pm, WB116	
	Lab/Tutorial #1	Thurs, Jan 30	<b>Lab #1</b> (Section 2), 11am-1pm, RW 107/109 <b>Tutorial #1</b> (Section 1), 11am-1pm, WB116	<b>Lab 1 Assignment (Section 2) &amp; Post-tutorial reflection survey (Section 1)</b> due 11:59PM Jan 30
Feb 3-9	Exploring Behaviour of Statistics Across Samples	Tues, Feb 4	Lecture, 11am-1pm, WB116	
	Lab/Tutorial #2	Thurs, Feb 6	<b>Lab #2</b> (Section 1), 11am-1pm, RW 107/109 <b>Tutorial #2</b> (Section 2), 11am-1pm, WB116	<b>Lab 2 Assignment (Section 1) &amp; Post-tutorial reflection survey (Section 2)</b> due 11:59PM Feb 6
Feb 10-16	Introduction to Statistical Models and Inference	Tues, Feb 11	Lecture, 11am-1pm, WB116	
	Lab/Tutorial #2	Thurs, Feb 13	<b>Lab #2</b> (Section 2), 11am-1pm, RW 107/109 <b>Tutorial #2</b> (Section 1), 11am-1pm, WB116	<b>Lab 2 Assignment (Section 2) &amp; Post-tutorial reflection survey (Section 1)</b> due 11:59PM Feb 13
Feb 17-23	READING WEEK			

Feb 24-Mar 1	Inference on Means	Tues, Feb 25	Lecture, 11am-1pm, WB116	
	Inferences on Means (continued)	Thurs, Feb 27	Lecture, 11am-1pm, WB116	Group project proposal due 11:59PM Feb 27
Mar 2-8	Inference on Means (continued)	Tues, Mar 3	Lecture, 11am-1pm, WB116	
	Lab/Tutorial #3	Thurs, Mar 5	<b>Lab #3</b> (Section 1), 11am-1pm, RW 107/109 <b>Tutorial #3</b> (Section 2), 11am-1pm, WB116	<b>Lab 3 Assignment (Section 1) &amp; Post-tutorial reflection survey (Section 2)</b> due 11:59PM Mar 5
Mar 9-15	One-way ANOVA	Tues, Mar 10	Lecture, 11am-1pm, WB116	
	Lab/Tutorial #3	Thurs, Mar 12	<b>Lab #3</b> (Section 2), 11am-1pm, RW 107/109 <b>Tutorial #3</b> (Section 1), 11am-1pm, WB116	<b>Lab 3 Assignment (Section 2) &amp; Post-tutorial reflection survey (Section 1)</b> due 11:59PM Mar 12
Mar 16-22	Two-way ANOVA	Tues, Mar 17	Lecture, 11am-1pm, WB116	
	Lab/Tutorial #4	Thurs, Mar 19	<b>Lab #4</b> (Section 1), 11am-1pm, RW 107/109 <b>Tutorial #4</b> (Section 2), 11am-1pm, WB116	<b>Lab 4 Assignment (Section 1) &amp; Post-tutorial reflection survey (Section 2)</b> due 11:59PM Mar 19
Mar 23-29	Inference on Proportions	Tues, Mar 24	Lecture, 11am-1pm, WB116	
	Lab/Tutorial #4	Thurs, Mar 26	<b>Lab #4</b> (Section 2), 11am-1pm, RW 107/109 <b>Tutorial #4</b> (Section 1), 11am-1pm, WB116	<b>Lab 4 Assignment (Section 2) &amp; Post-tutorial reflection survey (Section 1)</b> due 11:59PM Mar 26
Mar 30-Apr 5	Other Useful Methods	Tues, Mar 31	Lecture, 11am-1pm, WB116	
	Review	Thurs, Apr 2	Lecture, 11am-1pm, WB116	Group project report due 11:59PM Apr 2
Apr 6-25	<i>Final exam period (3 hour final exam to be scheduled by the Faculty of Arts and Science during this time)</i>			

\* See Quercus grades for your assigned Section (1 or 2). You need to attend/do tutorials and labs based on the schedule above and your assigned Section. There are no make-ups for missed tutorials or lab assignments.