

CSC303: Social and information Networks, Spring 2022

How to read this Document: In an effort to make this document less dull and opaque, I've taken the liberty of adding informal explanations and comments throughout (in blue). If you're just here for the facts, then please do skip anything in blue – you won't miss anything of importance. If you're curious about why the course is organized the way it is, and want to suggest better ways of doing things in the future, then that's what the blue is for :)

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Lectures M,W 3:00-4:00 Zoom (Link on Quercus)

Tutorials F 3:00-4:00 In-Person (Room assignments on Quercus)

Office Hours: TBD, or by appointment.

Discussions on Piazza: I encourage student replies to questions. The TAs and I do NOT promise to answer questions on the same day as they are posted. Students are welcome to provide responses to questions but of course not to solve assignment questions.

Comments on Lectures: The decision to deliver lectures via Zoom was not made lightly, but I do believe it the best decision. Tutorials are in-person, and I will endeavour to make them in some way accessible electronically. I'll be collecting your thoughts and any concerns through a survey at the start of the semester.

Comments on Office Hours: Office hours will be determined via survey to try and account for your availabilities.

Course Description (mainly from the Calendar)

A course on how networks underlie social phenomena with an emphasis on developing intuition and reasoning about broadly applicable concepts in network analysis. Topics include: introduction to graph theory, social networks and relevant concepts, congestion games, information networks, network dynamics, information diffusion, “six degrees of separation”, community detection.

Prerequisites

From the course calendar: CSC263H1/ CSC265H1/ CSC263H5/ CSCB63H3, STA247H1/ STA255H1/ STA257H1/ ECO227Y1/ STA237H1/ STAB52H3/ STAB57H3, MAT221H1/ MAT223H1/ MAT240H1
In particular, note that linear algebra is a prerequisite of the course. Although it's not a major focus of the course, you may want to review the material if it's been a while. In particular, you should be familiar with the basics of solving a linear system of equations, the null space (i.e. kernel space) of a matrix, the idea of a block matrix (i.e., partitioned matrix), and the concepts of eigenvalues and eigenvectors.

Comments: If you're rusty, don't worry! I've included this reminder at the suggestion of last year's students – to this end I will provide some optional linear algebra readings.

Text

Networks, Crowds, and Markets: Reasoning About a Highly Connected World By David Easley and Jon Kleinberg.

Note: The authors have made their pre-publication draft freely available.

Comments: The core lecture material will closely follow the textbook, but we'll typically build on it a bit further by discussing related papers. This will help solidify the concepts, and in some cases show example applications of what we're learning.

Important Resource

The course website is considered a required reading for this course. Assignments, deadlines, important dates, and other announcements will be posted on the website throughout this course. You are responsible for checking the website regularly.

Tutorials

Tutorials are typically structured in the following way: First, there is a period in which students can discuss any questions about course material with the TA. The remaining tutorial time is usually dedicated to either an example from the textbook or a related paper that further builds on the concepts from class. Finally, any remaining time is typically dedicated to a Quercus quiz of recent lecture material. Some tutorials will instead be dedicated to reviewing assignment solutions, and answering any related questions. Note that you may be tested on material from tutorial.

Grading Scheme

Participation:	5%	Quercus Quizzes
Assignments:	2 worth 15% each.	A1 due Feb 18, A2 due March 28
Critical review of a current article:	10 %.	Due Mar 25
Open-Book Take-Home Term test:	20%.	Released Mar 11, Due Mar 13
Open-Book Take-Home Final Exam:	35%	TBD (48 hours)

The participation grade come from a series of Quercus Quizzes. Most weeks have a short quiz testing the previous week's material, which is available for completion for 1 week (you'll be reminded in tutorial). Each individual quiz is only graded for completion, and the final participation grade is simply the proportion of completed quizzes.

In the critical review, groups of 3-4 students will choose and critique a current research article directly related to the course.

Comments on Components:

- Quercus quizzes are intended to be low-stress checks of your understanding of the week's material – that's why they are graded only for completion
- The assignments are opportunities to apply what you've learned to practice problems; the open-book tests can be thought of as a shorter equivalent.

- The critical review project is your chance to really sink your teeth into the material by looking at a real, recent, research paper, and determining how course material is used, what the strengths and weaknesses of the paper are, as well as possible future work. In short, it's an exciting chance to practice some of the skills used in real research

Comments on Due Dates: Due dates are always tricky, but I've tried to do my best under various constraints (mostly ensuring time to grade, review, and remark results, trying to prevent work during reading week, various restrictions from the instructor handbook, etc... – if you're curious, feel free to contact me for more details). Note that the midterm overlaps with the semi-annual daylight savings switch.

The 20% rule: you will receive 20% of the points for any (sub)problem for which you write "I do not know how to answer this question." If instead you submit irrelevant, erroneous, or blank answers, you will receive 0 points. You may receive partial credit for the work that is clearly "on the right track." The 20% rule applies to all term work: assignments, term tests, and even the final.

Comments: This policy has practical, and pedagogical motivations. Practically speaking, it's saves everyone time if you don't have to try and bluff us for marks! Pedagogically speaking, the policy is quite valuable since a key part of learning is knowing what we don't know. Knowing what we don't know, and having the courage to admit it, is a valuable lifelong skill.

Assignment Policy

Assignments will be submitted electronically on MarkUs. All students will be given 12 two-hour grace tokens at the start of the term via MarkUs. Each token is single-use and extends the deadline by 2 hours. You can use (or not use) them as you see fit. These tokens can *only* be used to extend either the A1, A2, or critical review project deadlines. To give an example, you can use all your tokens to extend the deadline of only A1 by 24 hours, or you could use all your tokens to extend the deadlines of A1, A2, and the critical review all by 8 hours. MarkUs will automatically deduct the token(s), there is not need to notify us. Note that for group work, **all** team-members must have the required number of tokens to extend the deadline as desired, and the tokens will be deducted from all members (e.g., to extend the deadline by 2 hours, all members must lose 1 token each).

If you don't have enough grace tokens, then late assignments will *not* be accepted. Accommodation will be made for medical reasons or extenuating factors – when possible, you must notify me before the deadline. Requests for regrading (for an assignment or the term test) must be submitted in writing via MarkUs with an explanation as to what you consider to be an incorrect grade. For clerical errors, feel free to email me directly.

Comments: Hopefully this policy is pretty straight-forwards; I like grace tokens as they give you some breathing room in the case of technical glitches or other such external problems. I chose to make the maximum extension 1 day, as it is enough time to get considerable work done (life happens!), and anything longer starts to significantly reduce the time available for marking.

Collaboration Policy and Academic Integrity

You are allowed to discuss assignment questions with other students. You are allowed to consult additional materials, e.g., books, papers, websites. Nonetheless, with the exception of the critical review assignment, the writeup of your solutions should be your own and should be done in isolation from other students and resources. In addition, you must clearly identify the names of

students you collaborated with (if any) and provide a clear description of additional materials you consulted (if any). Copying or allowing other students to copy solutions is a serious academic offense and will be reported. Similarly, copying from an internet source will also be viewed as plagiarism.

All students are expected to follow the University's guidelines and policies on academic integrity. For students, this means following the standards of academic honesty when writing assignments, collaborating with fellow students, and writing tests and exams. Ensure that the work you submit for grading represents your own honest efforts. Plagiarism—representing someone else's work as your own or submitting work that you have previously submitted for marks in another class or program—is a serious offence that can result in sanctions. Consult the Code of Behaviour on Academic Matters for a complete outline of the University's policy and expectations. You might find the Arts and Science website on academic honesty (and references therein) helpful: <https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity/academic-misconduct>.

Email Policy

I read email regularly, but I do NOT promise to reply to all emails. In particular, if your question is of general interest, you should use Piazza. If you choose to use email for say a sensitive or personal question, that is fine. If your question is of general interest, I will probably not respond by email but rather I will address your question on Piazza or during the following lecture, so that everyone can benefit. If your question requires a more technical answer it is much better to ask it during a lecture, or a tutorial, or office hours.

Comments: The following sections on accessibility and accommodation are boilerplate, but it's good boilerplate! I'm more than happy to help if I can, so please do reach out if you feel comfortable.

Accessibility

Students with diverse learning styles and needs are welcome in this course. If you have an acute or ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) at the beginning of the academic year by visiting <http://www.studentlife.utoronto.ca/as/new-registration>. Without registration, you will not be able to verify your situation with your instructors, and instructors will not be advised about your accommodation needs. AS will assess your situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. Remember that the process of accommodation is private: AS will not share details of your needs or condition with any instructor, and your instructors will not reveal that you are registered with AS.

Religious Accommodations

As a student at the University of Toronto, you are part of a diverse community that welcomes and includes students and faculty from a wide range of cultural and religious traditions. For my part, I will make every reasonable effort to avoid scheduling tests, examinations, or other compulsory activities on religious holy days not captured by statutory holidays. Further to University Policy, if you anticipate being absent from class or missing a major course activity (such as a test or in-class assignment) due to a religious observance, please let me know as early in the course as

possible, and with sufficient notice (at least two to three weeks), so that we can work together to make alternate arrangements.

Absences and Other Accommodations

Students who are absent from academic participation for any medical reason (e.g., COVID, cold, flu and other illness or injury, family situation) and who require consideration for missed academic work should contact me via email, and report their absence through the online absence declaration. The declaration is available on ACORN under the Profile and Settings menu.

If a medical absence extends beyond 14 consecutive days, or if you have a non-medical personal situation preventing you from completing your academic work, you should connect with your College Registrar. They can provide advice and assistance reaching out to instructors on your behalf. If you get a concussion, break your hand, or suffer some other acute injury, you should register with Accessibility Services as soon as possible.

There may be times when you are unable to complete course work on time due to non-medical reasons. If you have concerns, speak to me or to an advisor in your College Registrar's office; they can help you to decide if you want to request an extension or accommodation. They may be able to provide you with a College Registrar's letter of support to give to your instructors, and importantly, connect you with other resources on campus for help with your situation.

Recordings

This course, including your participation, will be recorded on video and will be available to students in the course for viewing remotely and after each session. Course videos and materials belong to myself, the University, and/or other source depending on the specific facts of each situation, and are protected by copyright. In this course, you are permitted to download session videos and materials for your own academic use, but you should not copy, share, or use them for any other purpose without my explicit permission. For questions about recording and use of videos in which you appear please contact me.

Feedback

This is, ultimately, a living course. I do my best to take student feedback and problems into account. Sometimes I can change things on the fly, such as moving lecture recordings to a platform that allows them to be downloaded, or trying to use the whiteboard more often. Other times, I try my best to adjust the course the next time it's offered – such as providing advance warning and resources to review linear algebra! I deeply believe that students learn best in a non-stressful environment. Although there are some stressors that can't be removed, such as the need for assessment, I try my best to remove the stressors that arise from my choices.

As such, if there's something that could be done better in the course, if I've made a mistake in my assumptions about what's best for you, or if you have exciting ideas for how we could improve the course, please do let me know! I'm more than happy to hear from you, either through the instructional email, or through anonymous feedback: <https://forms.gle/vHLEsUGKSn41R6Z9>

Thank you! And I hope that together, we'll have a great year, and make it even better for next year's students :)