

CSCI-4260/MATH-4150: Graph Theory

Course Overview

Prof. George Slota

Spring 2024

Welcome to Graph Theory!

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Course Instructor



yo

- ▶ 8th year at RPI, 8th time teaching graph theory
 - ▶ I think I no longer have an excuse for doing a bad job
- ▶ Office hours: M/Th 2-3pm in 317 lally or by appointment
- ▶ Research interests: parallel graph algorithms, general graph analytics, high performance and scientific computing
 - ▶ Usually more “applied” than “theory” but here I am anyways
 - ▶ More applied course: Graph Mining (still time to sign up!)
- ▶ Other interests: climbing, skiing, general sending of gnar

Course TA and Mentors

TA: Hannah Powers

- ▶ powerh@rpi.edu
- ▶ Office Hours: TBD

Mentors: Brandon McCusker, Yuanyi Zhang, Zijian Zhong

- ▶ mccusb@rpi.edu, zhangy85@rpi.edu,
zhongz3@rpi.edu
- ▶ Office Hours: TBD

See website for up-to-date office hours, contact info, etc.

Generally: Contact mentors for help with working on assignments. Contact TA for grading issues/questions after post-assignment submission.

About the course

~~“Dull, but easy.”~~

“Slota is like, super chill. So chill, bruh.” – Reddit

“Too much theory.” – CS majors

“Too many algorithms.” – Math majors

“Don't know why I took this.” – Engineering majors

About the course

(read syllabus for more information)

- ▶ The course is a combination of pure graph theory and graph algorithms
 - ▶ Enough theory to annoy CS majors. Enough algorithms to annoy math majors.
- ▶ Website:
 - ▶ <http://www.cs.rpi.edu/~slotag/classes/SP24t/index.html>
- ▶ Textbook:
 - ▶ Introduction to Graph Theory - 2nd Edition
 - ▶ Douglas B. West
 - ▶ Available in bookstore, Amazon, “etc.”
- ▶ Schedule:
 - ▶ Please see website for up-to-date info

About the course

part 2

If you took this class because you liked Computer Organization last year:

- ▶ You are making a terrible mistake.
- ▶ These two classes are polar opposite.
 - ▶ Comp Org: A pure “systems” class. Project and HW-based, some easy exams.
 - ▶ Graph Theory: A pure “theory” class. Exams are very challenging, though curved. Homeworks require more thought, though are maybe less frustrating.
- ▶ Graph Mining is much closer to the Slota-certified *Comp Org Experience*©.

Your grade

(where it will come from)

- ▶ 40% – Homeworks: bi-weekly problem sets, covering the upcoming material
 - ▶ Submit via Submitty – usually given 2 weeks to complete
- ▶ 10% – Weekly Problems (WPs): covering the prior week's material
 - ▶ Time given most Fridays for working on WP in class
 - ▶ Open everything: book, internet, neighbor, etc.
 - ▶ Will be collected via Submitty within 24 hours of class
- ▶ Two exams worth remaining 50% of grade
 - ▶ Midterm last day before Spring break (20%)
 - ▶ Final during finals week (30%)

Late submission and Excuse Policy

- ▶ 7 total “sick days” allowed to be used through the semester
- ▶ 2 max can be used on each homework and WP assignment
- ▶ Submissions beyond 2 days will not be accepted without prior approval
 - ▶ You need to contact me before the deadline - extensions requested after the deadline generally won't be granted
 - ▶ Generally: To be able to go over homeworks in class and release solutions, I won't be particularly flexible
- ▶ Per the discretion of the instructor, missed assignment and midterm grades can be replaced with your final exam grade under certain circumstances
 - ▶ E.g., for longer-term illnesses or absences

Grading Methodology

Generally, grading graph theoretic proofs consistently is difficult, given the numerous ways to approach a problem. The below rubric is created to simplify grading and make it as fair as possible, and it will be applied to all proofs in the class.

- ▶ **4 pts:** The proof is fully correct. No identifiable logical gaps, incorrect statements, or other inconsistencies.
- ▶ **3 pts:** The proof is nearly correct, but has at most 1 minor flaw, logical gap, inconsistency, etc.
- ▶ **2 pts:** The general approach of the proof is correct, but has several flaws, is not complete, or has some substantial error. *If you are an average student, you can expect most of your proofs on exams to be awarded 2 pts.*
- ▶ **1 pt:** There is at least one correct statement in some attempted proof.
- ▶ **0 pts:** There is little to no effort made for the proof. No correct statements or other redeeming qualities.

FAQs

The class is full. Can you do a registration override?

- ▶ Yes. Email me on Wednesday January 10th with the request, after validating that the class is still full.

I missed [assignment] due to [reason], can I turn it in now?

- ▶ Maybe, depends on how late this request is being made relative to the deadline, what the [reason] is, etc. See the excuse policy in these slides and syllabus.

How are we doing office hours?

- ▶ TAs and mentors: TBD.
- ▶ Myself: In person in 317 Lally at 2pm on Monday/Thursday.