Grading

- Take-home Midterm – 30%;
- Take-home Final – 30%.
- Problem Sets/Strategy Designs – 40%.

Homework Logistics

- Assignments will be due on Mondays at 11:59pm, and assigned at least one week prior to the due date. There will be five PSets, five "Strategy Designs", and one warmup PSet.
- Handwritten solutions will not be accepted. You may use the provided LaTeX templates, or any other template/online LaTeX editor. Assignments must be submitted to codePost.
- Some assignments will feature extra credit. Progress on extra credit will not add to the assignment score, but will contribute heavily to "participation." Some extra credits are very challenging, and can be useful to gauge whether you want to pursue an IW in this area.
- Please anonymize your submissions!

Collaboration Policy

The following is a table of what sources you may and may not consult for different assignments. You should list all collaborators and external references used in your collaboration statement. Please feel free to ask any clarifying questions regarding the collaboration policy.

- You should **never** get help outside of Office Hours/Ed from someone not currently enrolled in the course, or consult staff solutions prior to submitting (if you somehow obtain them).
- For most homework problems, unless otherwise specified, you **may** collaborate with any number of other students in the class or consult any outside references to **develop** your solutions. **However, you must write up your own solutions without collaboration.**
- Some homework problems may be designated as *no-collaboration*. You **may not** collaborate with other students or consult outside references for these problems. You **may** still discuss the problem with course staff. The purpose of these problems is to give you experience solving an entire problem from start-to-finish on your own before the exams.
- Please list all collaborators and external references used in your collaboration statement.
- Feel free to ask any clarifying questions regarding the collaboration policy!

Exams

Take-home exams have similar format to PSets, but **you may not collaborate or consult outside references.** You may ask clarifying questions, but we will *not* provide hints/tips/guidance. The course staff may appear a bit robotic while answering questions about exams, because we are making a serious effort to stick strictly to a "no hints" policy.

Appeals

Graders sometimes make mistakes. When this happens, you can submit an appeal through codePost. In order to keep course logistics manageable, appeals must be submitted through codePost by the posted deadline — codePost will not accept late appeals. Your appeal must clearly and concisely state a concrete mistake that you believe the grader made. For example:

- "Grader said I didn't say X, but I did say X."
- "Grader feedback says only 'good job!', but they checked 15/20 on the rubric."
- "Grader was *extremely* subjectively harsh — multiple points were taken off for a typo."

Asking for another set of eyes, or a vague complaint, will generally not succeed. A successful appeal should clearly highlight a concrete mistake or confusion by the grader.

Floors

The rubric notes that every problem is graded separately on progress and presentation. So if you are truly stuck on a problem and do not have concrete thoughts to share, you can write something to the effect of "I don't know," and this will earn full presentation marks. If you have *concrete* partial progress (however small), you are encouraged to write it clearly for partial credit.

However, if you write something that is hard to evaluate (perhaps because it claims to accomplish significantly more than it accomplishes, and/or is written in an extremely rushed fashion, and/or happens to have fantastic language structure but very incorrect logical structure), you will likely receive a low (or zero) presentation score (and may still receive a low or zero progress score).

Late Policy

- **No late midterms or finals will be accepted.**
- Each PSet problem is submitted separately, so each problem consumes late days separately (so if you submit 3 problems of a PSet late by 2 days, you will use 6 late days). You may use up to **12 late days** on PSets throughout the semester, and up to **2 late days per problem**.
- You **may not** use late days on Strategy Designs due to logistics. The Strategy Designs are intended to consume time/energy comparable to one (hard) problem on one PSet, and not comparable to an entire PSet, so please think of the Strategy Designs as due the Friday after the corresponding PSet (because this is the suggested amount of time to spend on them), except we have given everyone 3 free late days.
- This policy is intended to cover events such as unexpected illness, out-of-town events, etc. However, if you believe you have *truly exceptional circumstances*, please email the course instructors, and we will consider accommodations in consultation with your residential dean.

Final Letter Grades

Below is as much detail as we are comfortable and able to share about how final letter grades are computed, as a function of your final numerical grade. The grading spreadsheet will allow you to compute your final numerical grade by inputting your assignment grades.

- Grades in this class are **not curved**, in the sense that your own numerical grades and final letter grades **do not depend on those of your classmates**.
- Individual assignments are not curved/rescaled/etc. Your final numerical grade is calculated as $.4 \cdot \frac{\text{PSet/SDPointsYouEarned}}{\text{TotalPossiblePSet/SDPoints}} + .3 \cdot \frac{\text{MidtermPointsYouEarned}}{\text{TotalPossibleMidtermPoints}} + .3 \cdot \frac{\text{FinalPointsYouEarned}}{\text{TotalPossibleFinalPoints}}$.
- We guarantee that if your final numerical grade is at least 50%, you will pass (C- or better).
- The cutoff for an A is comparable to what you would expect in a typical US high school (say, around 93%, but never exactly equal), and the cutoff for an A- is slightly lower (say, slightly lower than 90%). The gaps between consecutive cutoffs spread out as the grades get closer to C-, which is 50% (e.g., the gap between B+ and B is larger than the gap between A- and B+).
- It is not possible to earn an A+ on the basis of high marks alone (including a 100%). We do not recommend changing your behavior in the course in the hopes of receiving an A+, although it is possible to get an A+ for extreme examples of Participation (see below).

Participation

Your final numerical grade is computed based only on exams, PSets, and Strategy Designs. However, the course staff understands that sometimes this number is not perfectly representative of your performance, so your final letter grade will also consider "participation" to a small extent. There is no such thing as "negative participation" which can hurt your grade — participation can only help. *We do not suggest "participating" solely for the sake of improving your grade* (there are more time-efficient ways if you only care about your grade). That being said, we do think you will get more out of the course by "participating." Below are some examples of participation.

- Solving extra credit problems.
- Performing "above and beyond" on the open-ended Strategy Design Assignments.
- Participating in lecture/precept/office hours/Ed in a manner which benefits your classmates (e.g., answering questions, asking insightful questions).

Policy on Large Language Models

Recent advancements in large language models (LLMs), such as ChatGPT, motivate explicit policies in some courses. Fortunately, LLMs often produce detectable logical flaws, so our course policy can treat LLMs like any other tool.[a] Specifically:

- On exams, and no-collaboration problems, you may not use an LLM, the same way you may not use any other online tool.
- In line with the general collaboration policy, you can use an LLM however you like to *develop* your solutions to PSet problems (but not exam problems, nor no-collaboration problems) – our experience with state-of-the-art LLMs (i.e. GPT-4) indicate that it does not undermine the pedagogy of the course to use an LLM (and also that you will not receive high marks).[b]
- In line with the general collaboration policy, you must still *write up* your own solutions without collaboration (including with an LLM). For the sake of this policy, "write up" means "write up the text I would submit if I were allowed to submit handwritten or non-typeset solutions." Once you have "written up" your solution, you are allowed to use an LLM to format your exact text into LaTeX (and ask it to make the format however pretty you like). But, you should be the author of whatever text you write.
- Like any other collaboration or online tool, if you use an LLM on a PSet, you must acknowledge it in your collaboration statement.
- No matter how you produce your PSet solutions, you are ultimately responsible for whatever you submit. If you use an LLM to turn your text into LaTeX and it accidentally changes your text and ruins your logic, we will grade whatever you submit. If you use an LLM to solve the problem and it makes no progress with logical flaws, it may receive less than the 20% you'd earn by just leaving it blank.

The above is the course policy. In terms of advice, I would just strongly suggest ignoring LLMs for the purpose of this course. They are much better at solving PSets than last year,[c] and may sometimes even outperform the 20% you can earn by leaving it blank. However, you (of course) will not learn very much by asking an LLM to solve the PSet, and this will put you at a huge disadvantage for the exams.[d] Basically: (a) you're here to learn, LLMs won't help you learn, and (b) even if you're here to get a good grade while learning as little as possible, LLMs won't help you do that either (at least, as of January 2024), but (c) it is not against the course policy to ignore our advice (provided you respect the bullets above).

The cheatsheet contains a more detailed account of our experiments with Chat-GPT as a tool for various tasks. If you have a creative use case of LLMs in mind, feel free to ask the course staff for our opinion.

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[a]The course staff reserves the flexibility to change this, in case LLMs become significantly better at math during the course, or in case we discover a novel use of LLMs that undermine the pedagogy of the course, or in case there is a flood of potentially LLM-generated solutions that DDoS the course staff but ultimately receive 0 points.

[b]Note that the warmup PSet is significantly simpler than later PSets. LLMs would not receive a good grade on the warmup PSet, but they did do a good deal better than the "I don't know" floors – their performance significantly dropped off for non-warmup PSets.

[c]Last year, LLMs would have scored close to 0 – way worse than blank, on essentially every question. This year, they occasionally made minimal progress on some problems.

[d]For the same reason, I don't advise asking your friend for PSet answers, even though it is not against the course policy to do so, and your friend is likely much better at PSets than state-of-the-art LLMs.

Unsolicited Thoughts

What follows is not related to course policy, but may help you interact with the course better.

Thoughts on grades. The purpose of grading is to give you objective feedback on the solutions you submit, and the purpose of feedback is to guide you towards producing stronger solutions. Still, we understand that it can sometimes feel like your numerical scores are not representative of your ability towards the material. In case you find yourself feeling this way throughout the course, and are unsure how to process graders' feedback towards improving your scores, please (a) note that it is not (at all) uncommon to initially feel this way, and even to feel frustrated by it, but ultimately "figure it out,"[a] and (b) reach out to the course staff for guidance — we are very happy to help you figure out how to spend your effort productively.[b]

What should you do if you looooooove this stuff? If you looooooove this stuff, and want to know what it would look like to pursue advanced research in Economics and Computation, we *strongly suggest* trying the extra credits! To be clear, you might spend more time on an extra credit problem than you do on a PSet, and you might not find a solution. These problems give a taste of the style of research questions asked, and also give a taste of what "the struggle" of theoretical research feels like. If you enjoy the struggle of the extra credits (independent of whether you eventually solve it), you'll likely enjoy the struggle of theoretical research too.

We do grade the extra credits extra-objectively (and the instructors grade these ourselves), so that you get very clear feedback on what's expected of top-level research. It's (very) normal to receive low scores on an extra credit after significant effort, but they'll come with enthusiastic comments about how to improve next time. If this process sounds fun to you, give it a shot!

If you looooooove some of the themes in the course, but not necessarily the theoretical aspects, you can also reach out to the course staff to ask for pointers to further material, or just to discuss the topics in general.

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[a]For example, even though we (the instructors) are presumably good at the course material, early versions of the lecture notes were sometimes not well-explained, and wouldn't receive full marks if submitted as a PSet. It took a lot of effort (and some frustration) to produce high-quality lecture notes. Also, all instructors had a long journey towards feeling competent in the course material, and those journeys included frustration along the way.

[b]Because the course is so large, we may first try routing you towards your preceptor, or the "No PSets" office hours. But it is definitely fine to reach out, and in case the scalable resources aren't working for you, we will try our best to find members of the course staff (possibly the instructors themselves) who can meet 1-1.