

Important  
Note

Exams and  
Assignments

*Please ask questions early* if anything about course policy is unclear. We hope this document is sufficient for you to understand how to engage with the course, but please be aware that the course structure is new, and likely different from what you're used to.

The purpose of this document is to serve as the minimal working information you *need* to know how to engage with the course. More information may indeed be helpful, so feel free to ask.

- **Exams.** There will be three exams in the course: two Midterms and a Final. All exams will be in-class and closed-note.<sup>a</sup> The exams will be challenging.

- **Problem Sets.** We will “assign” 4 problem sets (plus one warmup problem set) throughout the semester; however, *problem sets will not be graded*. The only requirement is that you submit PSet solutions (even if not complete) along with self-assessments on Gradescope. Aside from this, problem sets will be treated like ‘typical’ problem sets: we will answer questions on Ed, hold office hours, share staff solutions, etc.

*The purpose of the problem sets is to help you prepare for exams* (and the exams will be challenging). You will have an opportunity to get detailed feedback through a live 30-minute 1-1 meeting with a member of the course staff each week (see ‘Coaching’ for further details).

- **Strategy Designs** (SDs) are coding assignments where you compete against other students. We will release 5 SDs throughout the semester, which will likewise not be graded. The only “requirement” is that you submit code to TigerFile that compiles and corresponds to a valid strategy.<sup>b</sup>

Because performance on the assignments does not contribute to your grade, these assignments are fully open – you can use AI/collaboration/etc. in any manner you like. Of course, we strongly recommend engaging with them in a manner that benefits your learning (and future exam performance). We will give you advice on how to do this, but it is not a violation of course policy to ignore our advice.

<sup>a</sup>These are typical pencil-and-paper exams – no outside material (phone, laptop, AI, notes, etc.) are permitted.

<sup>b</sup>While we strongly recommend seriously engaging with the SDs, it is clear that problem sets are the type of assignment that most strongly correlates with good exam performance. However, SDs do factor into your grade (see ‘Grading’ and ‘Participation’).

## Coaching

Every student will get assigned a TA or UCA as a ‘coach’ for the semester. You will have the option to meet with your coach 1-1 for 30 minutes each week.<sup>c</sup> You can use this meeting to ask your coach to live-“grade” a portion of your PSet and give you detailed feedback, for 1-1 help reflecting on how you approached the PSets, for 1-1 help completing the PSets, or anything you find useful. We will provide default suggestions, but you and your coach are free to go off-script in whatever manner you find most helpful.

Each week you show up engaged to a coaching meeting, you will accumulate one ‘credit’, up to a maximum of eight.<sup>d</sup> See below for how credits factor into grades.

Note: we will *not* give “late days” or “accommodation credits” for missed coaching sessions, under any circumstances.<sup>e</sup>

Note: we reserve the right to change the mechanism by which credits are accumulated, as we figure things out during the semester. We commit to maintaining the following principles:

- You will have the opportunity for a live 30-minute 1-1 meeting at least ten weeks.
- Your “performance” during these meetings will in no way impact the credits you earn – the purpose of these meetings is truly just to help you develop skills, and the purpose of credits is truly just to ease the transition from policies you’re used to.<sup>f</sup>
- In each of these ten weeks, you will have the opportunity to earn up to one credit, and the manner by which credits impact your grade will be as specified below.

## Grading

The course has two kinds of graded components: *engagement* and exams. You accumulate engagement “credits” by showing up engaged to coaching sessions (up to a maximum of 8), precepts (up to 3) and one-on-one office hours (up to 1); and for submitting SDs (up to 3).

- Let  $c$  denote the number of coaching credits accumulated,  $p$  the number of precept credits,  $h$  the number of office hour credits and  $s$  the number of SD credits.
- Your engagement grade is  $e = (c + p + h + s)/15$ , and  $0.3 \cdot e$  is a floor on your final numeric grade. It determines the relative weight of exams as follows.
- In-class Midterms:  $(1 - e) \cdot 2/7$  each.
- In-class Final:  $(1 - e) \cdot 3/7$ .

In other words, the baseline grading scheme is  $2/7$  each Midterm,  $3/7$  Final.<sup>g</sup> Each engagement credit takes  $0.3 \cdot 1/15$  off the exams’ weight, and marks it as completed (i.e., at 100%).<sup>h</sup>

<sup>c</sup>Or rather, almost every week – there may be a week or two with no meetings.

<sup>d</sup>“Engaged” does not have a formal definition, takes your submissions to Gradescope into account, and is pass/fail. If you do anything reasonable, you will pass. If you do something unreasonable, you will not get credit for the meeting.

<sup>e</sup>This is because the sessions are not required for your grade. It is completely acceptable to miss a coaching session on any week, provided you give your coach advanced notice and are respectful of their time, etc.

<sup>f</sup>Short of being “disengaged” or “unreasonable,” which we will not provide formal definitions for.

<sup>g</sup>While the exams will be challenging, we intend to prepare you well for them, and consider this to be a fair baseline grading scheme. Still, we understand that live exams are stressful, and so are also offering an opportunity to mitigate this via engagement credits.

<sup>h</sup>For example, if you scored 80% on each exam with no credits, your final grade would be 80%. If instead you had 15 credits, your final grade would be  $80 \cdot 0.70 + 100 \cdot 0.30 = 86\%$ .

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.

- 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 exams are not curved/rescaled/etc. Call
  - $e$  the number of engagement credits you earned;
  - $m_1$  and  $M_1$  the number of points you earned and the total number of points on the first midterm;
  - $m_2$  and  $M_2$  the number of points you earned and the total number of points on the second midterm;
  - $f$  and  $F$  the number of points you earned and the total number of points on the final;

Your final numerical grade  $0 \leq g \leq 1$  is calculated as follows:

$$g = 0.3 \cdot e + (1 - e) \cdot \left( \frac{2}{7} \cdot \frac{m_1}{M_1} + \frac{2}{7} \cdot \frac{m_2}{M_2} + \frac{3}{7} \cdot \frac{f}{F} \right)$$

- We guarantee that if your final numerical grade is at least 60%, you will pass (C- or better).
- The cutoff for an A is comparable to what one might expect in a typical US high school (say, around 93%, but not exactly equal), and the cutoff for an A- is slightly lower (say, slightly below 90%). The gaps between consecutive cutoffs spread out as the grades get closer to C-, which is 60% (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 next).

Policy on  
Large  
Language  
Models

Recent advancements in large language models (LLMs) motivate explicit policies in some courses.

- On exams, you may not use AI or LLMs at all (the exams are in-class, and you may not use anything except your pencil and paper).
- You are permitted to use LLMs in any manner you like when completing the PSets, as your PSet performance does not impact your grade.

The above is the course policy. See below for advice (but it is not a violation of course policy to ignore our advice).

## Participation

Your final numerical grade is computed based only on exams and credits. However, the course staff understands that sometimes this number is not perfectly representative of your performance, so your final letter grade *may* 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, such as engaging with the PSets). That being said, we do think you will get more out of the course by “participating.” Below are some examples:

- Solving extra credit problems.
- Participating in lecture/precept/office hours/Ed in a manner which benefits your classmates (e.g., answering questions, asking insightful questions).
- Performing well on strategy designs and presenting your strategy (by invitation).

Below are some non-examples of participation:

- Attending lecture. (Please attend lecture anyway!)
- Impressing your Coach (in order to maintain the ‘purity’ of Coaching, your ‘performance’ during Coaching sessions will have no impact on your grade at all, positive or negative. Your Coach is there to help you develop skills to prepare for the exam).
- Attending office hours or precept. (Please attend office hours and precept insofar as you find them helpful!)

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

**What's up with the credits?** We fully believe the baseline exam-exclusive grading scheme at a 2:2:3 proportion for Midterm 1, Midterm 2 and Final is fair, and would be completely comfortable having that as the grading scheme. We also intend for the PSets to work you hard during the semester so that you're well-trained to do well on a challenging exam. We will help you complete the PSets when you're stuck and give you feedback so you know how to improve. However, we also understand you may be used to having PSet performance count towards your grade, and this serving as the primary motivation to stay on track with your own prep. Due to LLMs, it is no longer a sensible policy to have PSet performance count towards grades. Rather than abruptly switching to a grading policy that gives you full ownership of your own exam prep, we're using credits as an intermediate stage.

**How will PSets help me do better on the exams?** The primary skill you'll develop throughout this course is rigorous, creative problem-solving (together with logically-clear presentation of said solutions). Your performance on the exams will largely correlate with your development of this skill, and engaging with the PSets will help you develop this skill. Importantly, *this is not a skill you can cram – it just takes time to develop*. An analogy to have in mind might be competitive sports – you can't cram conditioning,<sup>i</sup> and need to steadily condition every week for a competition three months out. There will certainly be aspects specific to the exam topics you'll want to touch up closer to the exam, but ultimately a steady development of improved problem-solving ability is your best bet.

**Will you really give me eight credits if I show up to one-on-one coaching without having done the PSet?** Yes, but: (a) you must be respectful of the coach's time (i.e. you are honest with them about where you're at, work together to make good use of your time with them anyway, and make a realistic plan to get more out of the session next week), and (b) if the only time you spend 'training' for the exams is the 30-minute coaching sessions, you risk getting close to zero on the exams (and therefore risk failing the course, even with eight credits) – the exams will be challenging! If you want to do well on the exams, you should plan to spend the same time on this course as you would if the PSets were graded.

**What should you do if you loooooove this stuff?** If you loooooove this stuff, and want to know what it would look like to pursue advanced research in Theoretical Computer Science, *try 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.

If you spend several hours on the extra credit problems and want to discuss these with an instructor, office hours are an appropriate place to do this. If you are feeling in good shape for the course material, you can also use your weekly coaching session to discuss the extra credits.

If you loooooove 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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<sup>i</sup>Yes, depending on your competition level, you may be able to cram technique and make meaningful touchups. But it's physically impossible to 'cram' a faster mile two weeks out.