In this talk, I'll reflect on my experiences with alternative grading practices that better represent the learning that students achieve over time, producing more equitable outcomes by changing the way we determine final grades. Moreover, alternative grading also has the potential to empower students by making space for creative student work that might not otherwise thrive in a points-based grading ecosystem. But grading policies on their own often aren't enough—at least not in the grade-focused culture at UW—so I'll also share some of the challenges that I've faced and how I work toward better relationships between students, educators, and grades.

These materials will be shared with you afterwards. The outline of the talk goes like this: I'll first discuss motivations for the problem, then discuss the philosophy of alternative grading, before sharing some example policies that we've used in large, undergraduate computing courses here at UW, and finally reflecting on the details and subtleties of alternative grading. The Q&A will be open for questions and I’m planning for there to be some time to talk at the end: if you have a question come up during the talk, you can type it down.
Relationships are at the heart of all teaching: between students and educators, between students and their peers, and between students and their texts, problems, or worlds that we challenge them to answer. Our relationships frame our answers to the “why” of learning: why are we gathered here to learn this? I hope that my work as an educator can create better relationships for students, particularly in the large undergraduate computing courses that I tend to teach. But the one relationship that I’ve found to be more central to teaching yet rarely questioned is the relationship between educators, students, and grades.
Grading affects all of these relationships! It moderates our relationships with students, with how students relate to each other and move through the physical spaces of our classrooms, and also their interest in the subject matter. In this talk, I'll tend to focus on our relationship with students as moderated by grades, but I think more attention could be deserved to the other factors of students' experiences in a course, particularly how learning culture is shaped by students' interactions with each other as moderated by grades.
Grading systems have been long debated because it is fundamentally a debate about values.

Mina [min-uh] Zavary, a UW Ph.D student in Human-Centered Design & Engineering, shared with me her work studying the UW archives about debates in the 1970s to change the UW grading policy from A/B/C letter grades to 0.1 increments. Concerns and debates over grading were raised then too: Would such a change to the university-wide grading practices actually produce “better” grades? Some proponents of the change argued that grades would become more accurate as a result. Some opponents of the change argued that making grade increments smaller would increase precision but not accuracy. What's really the difference between a 3.3 and a 3.4 grade? And how would this system improve on a system of A’s, A-minus’s, B-plus’s, B’s, and so forth? Who does this grading system actually serve?
Questions about grading systems are more than just questions for the UW community. Beyond the 50 year time horizon, Mark Guzdial, a Professor at the University of Michigan conducting research in computing education, recounts how the US education system was significantly shaped by the four words, “Thorndike won. Dewey lost.”

Dewey believed in educating the student, meeting them where they were, and helping them to develop in their community through teacher-driven innovations in the classroom. Thorndike was about administrative systems: grades, teacher requirements and credentialing, preparing students for vocations, testing [...], and teachers implementing what researchers invent. The US education system favors the latter.

Mark goes on to quote David Labaree’s paper “How Dewey Lost: The Victory of David Snedden and Social Efficiency in the Reform of American Education”

The pedagogically progressive vision of education — child-centered, inquiry based, and personally engaging — is a hothouse flower trying to survive in the stony environment of public education. It won’t thrive unless conditions are ideal, since, among other things, it requires committed, creative, energetic,
and highly educated teachers, who are willing and able to construct education to order for students in the classroom; and it requires broad public and fiscal support for education as an investment in students rather than an investment in economic productivity.

But the administrative progressive vision of education — as a prudent investment in a socially efficient future — is a weed. It will grow almost anywhere.

Our grading systems today are shaped by the administrative progressive vision of education that ultimately won. Thorndike won. Dewey lost.
Even so, there are alternatives. Our colleagues at The Evergreen State College in nearby Olympia, Washington don't assign grade points or letter grades, but instead write narrative evaluations of student work. In this system, faculty evaluate students’ academic achievement in writing and discuss with students one-on-one during their “Evaluation Week”; students then write and turn in self-evaluations in addition to student evaluations of faculty. Alternative models for grading also work at scale with registrar support. MIT, for instance, has a first year grading policy that is designed to give students time to adjust by gradually introducing grades: in the Fall term, first year students receive a grade of either Pass or it’s dropped from their transcript; in the Spring term, first year students receive a grade of either A, B, C, or it’s dropped from their transcript.

The Evergreen State College also quotes an anonymous student about the benefits of narrative evaluation.

It’s rare to have a detailed essay from your professor that not only reflects your skills and learning but who you are as an individual. My transcripts all sound like letters of recommendation. They reflect everything I learned and everything my teachers saw within me.
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We should question how we grade because grades moderate our relationship with students.

Regardless of how you feel about each of these policy proposals, a question that was not asked in the UW archival records was, “What do students think about this proposal?” Mina related to me her surprise at how little the UW archival records involved student input and feedback. Decisions were being made by faculty without taking into account student feedback or experiences. Grades play a central role not only in students’ academic experiences, but also in their sense of belonging: beyond the tangible benefits that grades provide, a high grade indicates to them whether they belong to our fields of study. The relationships we have with students are mediated by grades: to many students, grades are the most unambiguous indicator of what faculty think about them.
Eman Sherif, a UW Ph.D student in Computer Science & Engineering, conducts research on assessment and grading policies in introductory programming courses. Through semi-structured interviews of students with underrepresented social identities in computing, she found 10 ways that assessment policies interacted with students’ lives to create or heighten inequities as “many policies did not consider the unique experiences of their students and students’ needs.” For instance, one student she interviewed “did not want to miss opportunities for extra credit because previously the professor did not explain expectations for assignments well, causing her to perform poorly on the majority of assignments”

I even remember my family was like, “What are you doing? You’re sick with Covid!” Yeah I gotta go to quiz section in case he gives extra credit.

Our assessment and grading policies have real impacts on student lives. When students were forced to decide between prioritizing their personal responsibilities or following course policy, they often chose to follow course policy. What does this reflect about our relationships with students if they feel they have to choose between doing what is best for themselves versus what is best for their grade? What does this mean for students who need to miss a few sections due to inflexible part-time job shifts, care-taking responsibilities, or students who are behind on course materials
and wouldn’t find quiz section beneficial anyways? Participation policies that can affect final grades like this represents one way that our grading systems produce inequitable outcomes. At the same time, participation is important, and without the extrinsic motivation of grades, many students are less likely to prioritize it compared to other work that is less flexible.

Just as grades can motivate students, they can also demotivate students too. Robert Talbert, a Professor of Mathematics at Grand Valley State University and a leading scholar in alternative grading, writes about the turning point that got him interested in questioning grading systems.

She crashed and burned on the first exam and was eliminated from getting an A in the class. In one shot, no A. Second exam, same thing. In one shot, she can’t get a B in the class. And I sat there and just watched her sense of self worth and her excitement in the class just decay away right before my eyes.
It’s not only students that have to choose between themselves and their grades. When one student asks for extra time, can I offer them extra time without offering every student in the course extra time? Or, if a student struggled on an assignment, can I offer them an extra make-up opportunity without also offering that opportunity to every other student in the class? In the large classes that I teach, I often worry about all the students who don’t feel that it is their prerogative to request exceptions to our policies. The end effect is that my own course policies bind me to inaction. In the interest of assigning grades fairly, I’ve often had to prioritize my administrative relationship to grades over my caring relationship to students. Faculty, instructors, and the teaching team are also bound to our own rules around grades.

What personally got me started on this path was a desire to right wrongs. Just like the story Robert shared about grading policies trapping him in a box, in my first quarter teaching at UW, I accused an embarrassingly large number of my students for academic misconduct. What does that say about my relationship with students if all the goodwill and trust that we build can be destroyed in a single email? Academic conduct is defined by us: if we can change our policies and our assessments, we can change what we consider right or wrong. That got me thinking about how else my policies are acting against my values and interests in supporting students, and so I started exploring methods to create more caring communities by questioning
assessment and grading practices.
Alternative grading can help us design systems that align grading practices with learning values.

**Alternative grading** is a broad umbrella term referring to grading practices that recognize and value the learning that students achieve over time. Drew Lewis defines a shared philosophy among alternative grading schemes.

1. Grades represent students’ proficiency, not their compliance or behavior.
2. Students have multiple opportunities to demonstrate proficiency.
3. Grades represent the learning that students demonstrate by the end.
4. Grades and points are de-emphasized in favor of rich, deep feedback.

Some of the most well-known alternative grading practices include specifications-based grading and standards-based grading. But rather than start by explaining each practice, I wanted to start from how changes to policies (changes to the relationships between students, educators, and grades) helped me produce more equitable grades that reflect what students know by the end of the term.
In STEM courses, midterm and final exams are commonly-used summative assessments of student achievement and proficiency. In the past, it was always difficult for me to explain to students who did poorly on a midterm exam that they could demonstrate their improvement on the final exam—probably because students didn’t see their midterm score as a learning deficit that could be improved over time, but rather a grading deficit that couldn’t be fully erased under weighted average grading. For smaller assignments or quizzes, it’s common to drop a low score, but this is not often the case for exams. To align grading policies with learning over time, replace (partially or fully) the midterm exam score with the corresponding portion of the final exam if there was improvement.

**Final Exam Clobbering.** For those of you who miss an exam, have a bad night, or make major improvements over the semester, the exam clobbering policy gives you a chance to use your final exam score to make up some of the points on your midterm scores.

The clobber policy will only be applied if it helps your score. For example, if you score the median on both midterms, but then have a bad day and do terribly on the final, we will not change your midterm scores.
The clobber policy can only be used to make up points on the midterms. For example, if you score well on the midterms, that cannot be used to make up points on the final exam.
The introductory courses I teach often include frequent weekly or multi-week programming assignments that apply concepts in more authentic settings. Historically, these assignments were carefully evaluated by teaching assistants using a detailed rubric that deducted points based on small but important details in student work. In the past, students would often want to know why points were lost—just as with exams, every point lost was one potential step further away from the highest possible final grades, and the deductions often felt unfair to students because they rarely received complete feedback. It came to a point that students who entered with course credit to skip our first introductory course would still retake the course in order to acclimate to the feedback before taking the second introductory course. To align grading policies with learning over time, we started introducing resubmissions into our introductory courses: students were encouraged to revise and resubmit to address feedback. This not only helped offer students a grade-based incentive to improve their work, but also turned the manual labor of grading into feedback that students were incentivized to learn from.

**Resubmission Policy (CSE 123).** Learning from mistakes is an important part of mastering any skill, especially for novices. To enable this, you are allowed to revise and resubmit your work on *programming assignments* and *creative projects* to demonstrate improved mastery after your initial
Resubmissions are subject to the following rules:

- A maximum of one Programming Assignment or Creative Project can be resubmitted each week (more on this below).
- There will be 8 opportunities for you to make a resubmission after receiving feedback on your work.
- You may not make a resubmission until feedback on the initial submission of that assessment has been released (generally one week after the due date).
- Resubmissions must be accompanied by a form describing the changes made. This will both support you in being deliberate about the changes you make and ease grading of resubmissions by making the changes clear.
- An assignment may only be resubmitted in the **3 resubmission cycles after feedback for the assignment has been released**.
- An assignment that has been found to involve academic misconduct may not be resubmitted (see below).
Since there are a limited number of weeks in the quarter, it is very important that you stay on top of your work as much as possible. Our resubmission policy is designed such that you should only be using a single resubmission on any particular assignment throughout the quarter. This means that it is imperative for you to complete as much of each assignment as you can by the initial submission date, so that you can receive feedback on more of that assignment before using a resubmission on it later.

Accepting resubmissions from every student in the class means more work, so the one-a-week limit helps balance the added grading workload while providing the desired benefits of motivation. But the nature of a resubmission policy changes our relationship with grades: the focus is less on assigning a precise point value and more on providing helpful, actionable feedback so that students can improve their work.
By focusing feedback on a more limited ESN scale with specific, clear standards, we’re able to better communicate areas for improvement to students. We’ve also seen that this redirects grading workload from a focus on assigning partial credit to a focus on providing helpful feedback first and only later categorizing the work into the ESN scale. So the overall workload on the teaching team stays about the same even when we accept resubmissions. The limit on the number of resubmissions per week helps strike a balance between managing that workload and motivating students to get work in relatively close to on-time.
So how are final grades determined? If we compare the programming assignment resubmission policy to the exam replacement policy, although they both reflect learning over time, the resubmission policy achieves this result by assuming each assignment has mostly non-overlapping learning objectives while the exam replacement policy achieves this result by assuming each exam has mostly overlapping learning objectives. Specifications grading emphasizes the importance of individual assignments and assumes non-overlap. Final grades are determined by bundles of work. Bundles can be more flexible than what we've put down here: you could also require a certain amount of engagement, participation, etc.

Specifications grading (CSE 123). Minimum requirements for each grade. Note that all requirements for a particular grade must be met to guarantee that minimum, though failing to do so does not mean that grade cannot be earned.

S+ indicates S or E. For example, for a minimum of 2.5 in the table, you need both at least 24 combined Ss and Es and at least 17 Es. (Or, put another way, at least 17 Es plus at least 7 more Ss or Es.)
Robert Talbert and David Clark summarize the philosophy of alternative grading with the Four Pillars of Alternative Grading. These pillars also represent questions that you can ask yourself when you consider your grading systems. Does your grading system have…?

1. **Clearly defined standards.** Student work is evaluated using content standards that are appropriate for the context and indicate what is acceptable evidence of learning.
2. **Helpful feedback.** Students receive actionable feedback that they can use to improve their learning.
3. **Marks indicate progress.** If marks are given, they should indicate a student's progress on a standard or specification.
4. **Reassessment without penalty.** Students can revise, resubmit, or reattempt work without penalty until they meet or exceed the standards.
The details absolutely matter given the significant moderating effect of grades on our relationships with students.

Alternative grading can start from a small policy change like exam replacement and then gradually incorporate larger changes like resubmission and feedback loops. But there are risks to making changes to any part of the course experience, let alone something as central to our relationship with students as grades. Students made it to UW by *efficiently* winning the game of grades. Alternative grading helps shift the focus from grading to learning, but it often makes it harder for students to pre-calculate exactly what score they need on an assignment to get a certain final grade.

Using these four pillars, we can evaluate our specifications grading system: Does it have clearly defined standards? Are we providing helpful feedback? How effectively do the marks indicate progress? Are there reattempts without penalty? If we zoom into the grading rubric, we hold students to a very high standard of work. Although these requirements are easily understood by experts on the teaching team, the novice programmers who are often enrolled in our introductory programming courses often find these requirements obtuse or unfair because not all of the rules are taught in-depth during class. And, even for the rules that are taught, there is still a daunting list of things to double check: not only this list here, but the code quality guide is a
separate page with 9 sections to sift through. Revision and resubmission can help alleviate student concern and learn from feedback—which is honestly probably the best way to learn these code quality guidelines.
But student anxiety and concern over grades still remain a challenge because we still have to assign grades at the end. Even in a system that allows resubmissions, I’ve struggled with the demand to differentiate final grades. One student Eman interviewed identified this challenge:

Yeah, my favorite thing was definitely resubmissions, because I could actively see the mistake that I made, or the error. Like what I got my points were just reduced on, and then fix it. Seeing how that translated definitely helped me feel more reassured and less panic. For the final and for the midterm, literally my hand was like shaking so bad because I was like I was telling myself, like my grade literally depends on these tests because of how much I did that on the assignments.

There’s still room for improvement in terms of how we communicate our expectations to students:

Another thing that really annoyed people is that sometimes they would let you do regrade. So in that way it kind of like made it a little bit more fair. But then, on the other hand, something that would happen is they mark you off, for one thing, on the original submission and then on the on your resubmission, they’ll fix that one in your grade but then they have to like ding you for something else that they didn’t even mention before. So I think that also kind of frustrated some people because they feel like it was thrown at them last minute.
like, fix that one in your grade but then they have to like ding you for something else that they didn't even mention before. So I think that also kind of frustrated some people because they feel like it was thrown at them last minute.
There are many ways to set up Canvas to indicate progress, though there’s typically some compromises that need to be made. The approach that requires the least change to your workflow is the use of module requirements to indicate the need for revision or resubmission. Students will still be notified of the point values, and probably still want to discuss points with you, but you can now more clearly indicate to students whether you think their work is satisfactory or if it requires revision and improvement. Students will automatically see a green checkmark when they’ve satisfied each module requirement.

But I’ve found this approach to still overemphasize points: we have to make choices about how many points every assignment should be worth, and what the cutoff should be for completion. From the student perspective, when they receive a Canvas notification of graded work, the first thing that the platform makes visible to students is the points, not our feedback. So I’ve found that this approach alone doesn’t fully work, but it can be a first step toward designing systems that allow for reattempts without penalty.
So how might we have Canvas de-emphasize points? First, we should change the student grades summary to hide totals. Totals are computed using averages of scores, which often doesn’t represent the proficiency students demonstrate by the end of the term. It also tends to reinforce fixation on points.

What Abigail Noyce and Dave Largent suggest doing for each assignment is to make them 1 point that is assigned complete or incomplete under the Edit Assignment interface. Then, in the Assignment Page, you can add a rubric to indicate feedback to students. Remove points from the rubric so that students aren’t distracted by the number of points they receive. If you check the “I’ll write free-form comments when assessing students” you can leave helpful feedback on student work per rubric item in addition to an overall submission comment.
How do we use these grades to check student progress and assign final grades at the end of the quarter? The Canvas gradebook actually becomes quite helpful here. Since we setup the assignments as complete/incomplete, Canvas displays them to students and instructors as checkmarks and X’s. (If you export the gradebook, they’ll come out as 1’s and 0’s.) Then, to count up the number of completed assignments, we can use the columns on the very far right of the gradebook that show percentages: since all the assignments have 1 point, this is a percentage of completed assignments. In this case, Canvas breaks down the percentages by each assignment group, which you can setup on the Course Assignments page by creating Assignment Groups.

Note that this doesn’t capture the rubric elements (like Behavior, Concepts, Quality, Testing), which if you want to do so you can look into more advanced Canvas features like the learning mastery gradebook.
It’s important to communicate to students explicitly, affirmatively, and repeatedly why we are making these changes. We aren’t changing grading policies because someone is requiring us to do it. We’re changing grading policies because we’re working toward a better student experience in the future. That future might not come immediately. It will likely involve some false starts and multiple quarters of iteration. It will also require your understanding of your own reasons for pursuing this work and the reasons why students enroll in your course—how are student expectations shaping how much they plan to focus on your course? It might require a quiz or an assignment so that students understand the “how” and the “why” of your grading policies. It might require waiting a couple weeks to build shared trust before talking about grading. It might even require your humility to change your policies during the quarter to adapt to student anxiety and concerns. These are certainly difficult to deal with, but traditional grading also poses its own challenges. It’s a matter of choosing between the challenges that we think lead to the best learning environments for students.

If we consider alternative grading to be the process of questioning our grading practices, then alternative grading has helped move me to a place where I can proudly say to students, “Yes, you can work on this and demonstrate your learning later,” and actually follow through on that promise by reflecting that effort in their
grade. It’s also freed me to incorporate creative work alongside more structured work. I’ve been able to explore more authentic assessments like video presentations where students record themselves explaining their work or student-defined creative projects. In the past, I’d worry a lot about how many points such an assignment should be worth—and what those points would imply to students about the importance of creative work—but alternative grading has given me a framework for integrating more authentic assessments while finding balance with more traditional core assignments.

All of this work has made it so that students have more diverse, realistic, and valuable learning experiences that better reflect the skills they’ll need in the future. These approaches can help create more equitable outcomes by avoiding putting students in situations where they have to choose between what is best for them and what is best for their grades. Grades can also be more accurate as a result as they reflect all of what students know by the end of the term, rather than parts of what they know throughout the term. Ultimately, it’s allowed me to build more trusting relationships with students—ones where I can talk to a student about their learning and potential for growth without also judging them by the quality of the work they submitted earlier. There are options outside of the frameworks that I’ve provided too, such as ungrading or co-designed grading systems, that can work in better step with students.
Let’s redesign grading to better our relationships with students.

The recent 2024 Teaching & Learning Showcase highlights three teams across UW that have shared work in this space.

- Ungrading Empowers Students to Value Progress over Perfection
- Student buy-in, grading and flexibility in a non-major physics course
- Assessing course syllabi with a rubric: Strategies for inclusive teaching

Throughout this talk, we’ve heard about the work of several UW doctoral students, so let me highlight them again: Eman Sherif, Mina Zavary, as well as Carly Gray and Rachel Song who also contributed to thinking through this talk. Beyond the university, we have an Alternative Grading Slack community of practice whose organizers are also organizing The Grading Conference after final exams week in June. I hope that you’ll join us in questioning our grading practices toward more accurate and equitable grading that ultimately produces more caring communities and relationships between students, their peers, and us.