

# Experiments in (un)grading

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What could be improved about our current approach to grading in higher education?

# Problems with grading

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- Grading stigmatizes failure, but failure is essential to growth
- Grading with high-stakes exams measures short-term retention rather than long-term knowledge and ability to use that knowledge in the real world
- Grading places the instructor in a “judge” role, which is incompatible with helping students to learn (i.e. a “coach” role)



Eric Mazur

# Outline: Experiments in grading

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- Schedule-driven grading
  - STATS 60/PSYCH 10
- Ungrading
  - PSYCH 154

# Introduction to Statistics (STATS 60/PSYCH 10)

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- A course that provides a solid basis in the modern theory and practice of statistical analysis
- A supportive environment for students with a range of mathematical/computational backgrounds
- An active learning experience for students to maximize engagement and ensure understanding
  - Students complete a group project across the quarter involving analysis of a self-chosen real-world dataset
- A focus on reproducibility

# Schedule-driven grading

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- A grading system that focuses only on the process of learning
- Encourages spaced practice across the entire course
- Simple enough for students to track their grade in their head



Patrick Watson  
Minerva Schools at KGI

# Schedule-driven grading

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- Students begin the course with an A+ but this grade can only go down
  - This is because students are loss averse and work hard to hold onto their grade.
- The course syllabus has a list of tasks, each with a deadline.
  - There are about two tasks per class meeting and the deadline is usually the beginning of the next class. There's often one task corresponding to the prep work for each class, and a task related to longer-term assignments.
- Each time a student misses a deadline, their grade drops half a letter grade. A+ → A → A- → B+
- There are no extensions and no make ups.
  - If you miss a deadline, it's not a big deal. Skip the task, take the hit, and move on to the next one.

# Adapting schedule driven grading to STATS 60

- Course organized around weekly Canvas modules

The screenshot displays a Canvas LMS course page for "Week 6: Hypothesis testing". The page is organized into several sections, each with a green checkmark indicating completion or availability. The sections and their items are as follows:

- Week 6: Hypothesis testing** (Overall status: ✓)
- Week 6 Learning Objectives** (Status: ✓)
- Readings** (Status: ✓)
  - Reading: Chapter 9 (Status: ✓)
- Videos** (Status: ✓)
  - Week 6 Video #1: HypothesisTesting (Status: ✓)
  - Week 6 Video #2: P-values (Status: ✓)
  - Week 6 Video #3: Statistical Decision Making (Status: ✓)
  - Week 6 Video #4: Criticisms Of NHST (Status: ✓)
- Tutorials** (Status: ✓)
  - Week 6 tutorial #1: Hypothesis testing (Status: ✓)
  - Week 6 Q&A Sheet for Friday discussion (Status: ✓)
- Week 6 Problem Set** (Status: ✓)
  - Multiple Due Dates | 1 pts
- Week 6 Quiz** (Status: ✓)
  - Multiple Due Dates | 6 pts
- Week 6 Lecture Report/Makeup** (Status: ✓)
  - Multiple Due Dates | 4 pts



# Schedule-driven grading in STATS 60

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- Every student starts the quarter with 102.5 points (105 points when initially used in 2021).
- Every missed assignment results in the loss of 2.5 points.
- The final grades are then determined by the number of points at the end of the quarter, using a standard scale
- All items in a week's module must be completed by Sunday evening of the following weekend.
  - Each module is available three weeks before the deadline, to allow students to work ahead as needed
- Every assignment must be submitted by the stated deadline to receive credit.

# Winter 2021 outcomes

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- Overall instructional quality: 4.48
- Rating of grading system: 4.85
- Student Comments about the grading system:
  - “This was an amazing course. The grading system really focuses on effective learning and effort rather than accuracy. “
  - “This is a great stats course and really an opportunity to learn without fear of grading.”
  - “Very helpful to focus on learning and not testing“
  - “Really great, it relieved a lot of pressure from the students and truly allowed us to just engage with the material at our own pace and with learning in mind rather than a concern for our letter grade.”
  - “I loved that I was graded on effort and completion because coding in R is very difficult and lots of students don't have coding backgrounds. This allows for a more equitable field among the entire class, otherwise, it would be very discouraging.”

# Challenges of schedule-driven grading

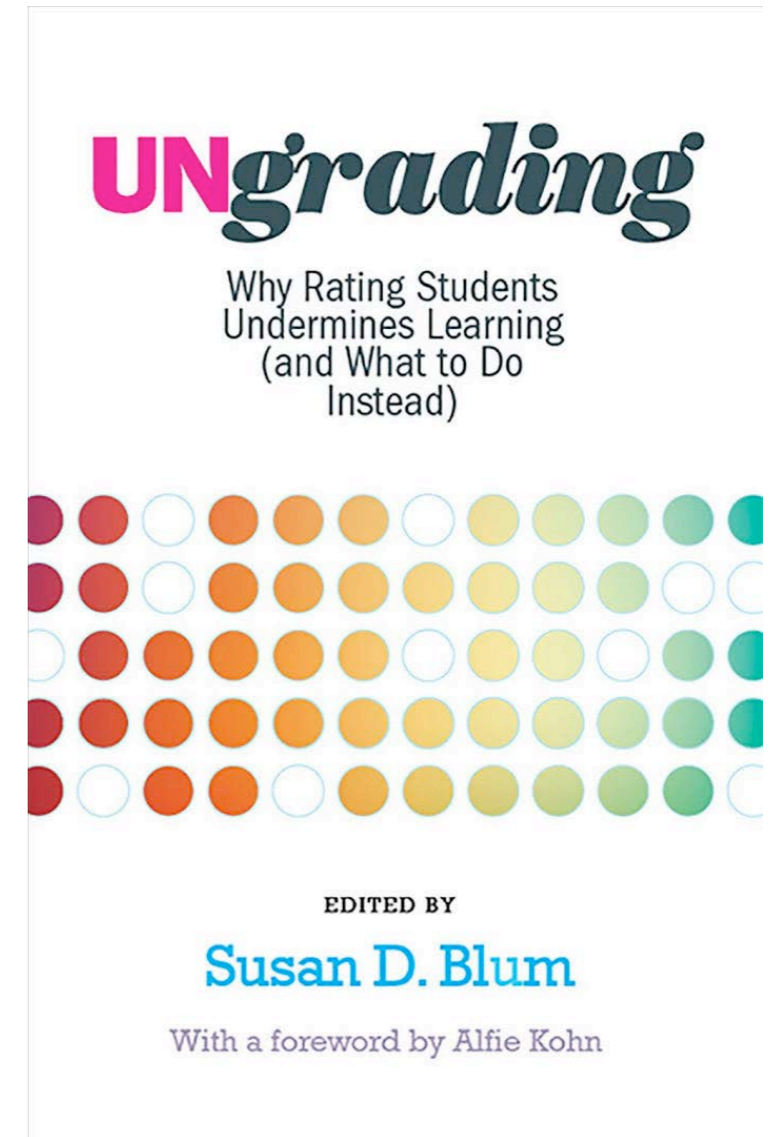
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- Allows students to skip some of the most important learning experiences with minimal impact
  - e.g. could not turn in any of the 4 problem sets and still get an A
  - “You can't make everything for completion. I know what grade I'm gonna get in this class and I absolutely do not deserve it. Grade PSets and projects for accuracy, please. Students will learn better that way instead of phoning it in, and it will still be fair online because the rest of the class (videos, quizzes, attendance) is for completion.”
- Some students have difficulty getting motivated without high-stakes exams
- Grade inflation is unavoidable

How might we address these challenges while still retaining the benefits of this approach?

# Ungrading

- From Jesse Stommel, “Ungrading: An Introduction”
  - Conventional grading is often at odds with our institutional missions. So far, I haven't seen a school mission statement with any of these:
    - We pit students and teachers against one another
    - We rank students in competitive ways
    - We measure output with little concern for the learning process
    - We value extrinsic over intrinsic motivation
    - We start from a place of deep suspicion of students
    - We assess in ways that reinforce bias against marginalized students



Have any of you tried “ungrading”?

**Jesse Stommel***University of Mary Washington*

Stommel has students write several self-reflections, with varying levels of guidance, during the term.

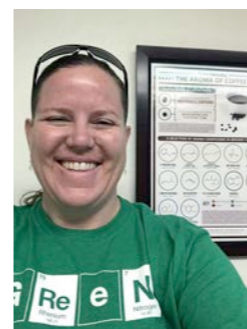
Because he is required to hand in final grades, Stommel has students determine their own. He reserves the right to change them. In the rare cases when that happens, he's more likely to raise a grade than to lower it.

**Starr Sackstein***Consultant and former high-school English teacher*

Sackstein collaborated with her students to design curriculum and standards. She gave them lots of feedback, in writing, in person, and using technology. At the end of the marking period, she met with students to discuss their work and decide together on their grade.

**Clarissa Sorensen-Unruh**

A newcomer to ungrading, Sorensen-Unruh focused her effort on the three midterm exams she gave in her “Organic Chemistry II” course. She gave students feedback but kept the point totals she would assign to herself and asked students to grade their own exams. In most cases, Sorensen-Unruh averaged the number of points she gave students on each problem with the number they gave themselves.

**Christopher K. Riesbeck**

Riesbeck's students can choose from a set of exercises to work on. Once they have working code for an exercise, they submit it to Riesbeck, who critiques their work and returns it for revision. The cycle continues until Riesbeck has nothing left to critique. At the end of the term, he assigns grades based on progress, quality, and effort.



# PSYCH 154: Judgment and Decision Making (Spring 2021)

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- Course learning goals:
  - Define key features of the normative, descriptive, neuroscientific, and computational approaches to understanding judgment and decision making, and describe the key evidence supporting each approach
  - Demonstrate the ability to dissect and understand published research papers in this area.
  - Use knowledge of concepts from the science of judgment and decision making to describe in nonspecialist language and apply to real-world problems



# PSYCH 154: Course structure

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- Weekly Canvas modules, each including:
  - 1-2 readings
  - 2-3 short lecture videos
  - A quiz (must score 100% to receive credit, can retake as many times as needed)
  - An entry in a learning diary outlining engagement in the week's activities
  - Some modules will include milestones related to the final project.
  - All activities for a module must be completed by Sunday at 11:59 PM PST in order to receive credit.
- Modules available for three weeks ahead of deadline

OpenJDM

**CONSUMER DECISION MAKING**

Sunk Costs in Consumer Decision Making

Mental accounting

The Psychology of Spending

Option Paralysis: When Less is More

**HEURISTICS AND BIASES**

Hindsight Bias

The Availability Heuristic

The Anchoring and Adjustment Heuristic

Illusory correlations

**VARIETIES OF JUDGMENT AND DECISION MAKING**

Affective Forecasting: Predicting Non-Formulaic Emotions

JDM Under Pressure

Political Decision Making

**NEUROSCIENTIFIC APPROACHES**

The neural basis of simple decisions

Neuroforecasting

The evolving field of neuromarketing

**COMPUTATIONAL APPROACHES**

Interactions between AI decision support systems and human JDM

Reinforcement learning

# OpenJDM

This book aims to provide an open-source introduction to some of the basic concepts from the psychology of judgment and decision making (commonly known as "JDM"). It was produced by the students in [Psychology 154: The Psychology of Judgment and Decision Making](#) at Stanford University, taught by Dr. Russell Poldrack in the spring quarter of 2021. Dr. Poldrack performed light editing on the final chapters in order to align their organization and format.

Additional contributions to this guide are welcome!

- If you wish to comment on an existing chapter, please use the [issues page](#).
- If you wish to edit an existing chapter directly or contribute a new chapter, please start by discussing your proposed change on the [issues page](#). Once you have made sure that your proposed change doesn't overlap with other ongoing work, you can fork the repository and submit a pull request with your proposed change. See [this guide from the Turing Way](#) for details on how to contribute via pull request.



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[Sunk Costs in Consumer Decision Making >>](#)

By The Psych 154 community

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<https://openjdm.github.io/>

# Ungrading

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- “At the end of the quarter, you will evaluate how well you think you did in the class and propose a fair grade, with evidence to support your proposal. Each student will meet with Dr. Poldrack in the last week of the quarter and we will determine your final letter grade together. In this class, *you are ultimately responsible* for making the commitment to be an active member of a learning community and for honestly assessing how effectively you have done so. Assessment without grading does not mean that everyone gets to assign themselves an A+; the proposed grade must match the degree of commitment and engagement that you demonstrated throughout the quarter. ”
- Argument for grade was based on engagement in specific learning opportunities
  - Quizzes (25%), participation (25%), and final project milestones (50%)

# Ungrading experience

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- Students proposed a range of grades
  - But only students taking for credit/no-credit proposed grades below an A-
- No students had their proposed grades lowered
- Two students had their proposed grades raised (from A to A+)
  - Both female students

# PSYCH 154 Spring 2021 Outcomes

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- Overall instructional quality: 4.52
- Rating of grading system: 4.62
- Student comments
  - I liked it - it took less pressure off getting everything 100% right and instead focusing on whether I learned the materials in a meaningful way.
  - The grading system pushed me to do extra work in order to be able to propose a good final grade.
  - I think it was an interesting idea and held me to a higher standard, but I also found it slightly daunting because I usually think less of my work than my professors do
  - I thought the grading system relieved the pressure of the class, and put the focus on the group project, and being an active participant. You get out what you put into the class.
  - Less stressful and more focused towards learning
  - I was skeptical at first, but I ended up pleasantly surprised. There's a lot of motivation to stay engaged when you know you're accountable for justifying your grade. I would have liked some kind of optional midterm or cumulative quizzes, but mostly just to check my understanding of what had been covered early in the course after time had passed

# Challenges of ungrading

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- Not scalable beyond about 30 students
- Disparities across students of different backgrounds
  - Students from privileged backgrounds are likely to be more comfortable proposing higher grades
- Student anxiety about how final grade will be determined
  - “I would appreciate this grading scheme much more if we were actually provided a rubric of some sorts to see how on-track we are to doing average, well, or extremely well. Without this it felt like flailing and then begging for an A at the end when none of us really know EXACTLY what is expected of an A, just a very vague and general "Go above and beyond". This was stressful because no matter how much effort I put in, I can't know what the professor was looking for. However, if we had more structure for the final project and more of a clear outline of what could constitute an A, B, etc., I would have very much enjoyed the concept of defending your own grade at the end.”

Thanks!

What are your thoughts?