Grading as it Could Be

Aligning Incentives with Intellectual Curiosity

Anya E. Vostinar

My Background

- Carleton College is a small liberal arts college that gives faculty nearly complete autonomy in *how* they teach, and a lot of autonomy in *what* they teach
- I teach computer science from basic intro to programming to research electives
- I switched to alternative grading in 2022 and never looked back

When teaching about “life as it could be”...

Possible goals:

- Encourage intellectual curiosity and exploration
- Provide a research-like experience
- Spark a desire to learn more
- Teach students about a weird and wide-ranging field

None of these goals are supported by weighted average grades!

Which of these students learned the most?

Student	HW 1	HW 2	Final Project
Roger Roberts	75%	73%	77%
Suzy Smith	100%	30%	95%
Tamara Thomas	50%	80%	95%
Vincent van der Garde	100%	65%	60%

Adapted from Drew Lewis with permission,
https://www.centerforgradingreform.org/index.html

Four Pillars of Alternative Grading

From https://gradingforgrowth.com/p/the-four-pillars-of-alternative-grading

A Lot of Ways to Implement

I use:

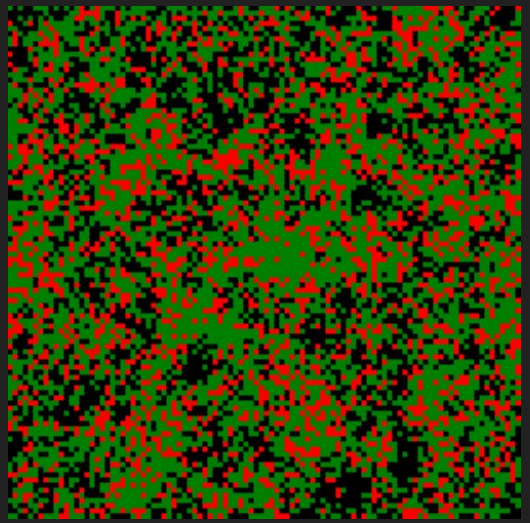
- Specifications grading (in my ALife class)
- Standards-based grading (in my lower-level classes)

https://rachelweir314.blogspot.com/2017/10/standards-based-grading.html

An Example in ALife

CS 361: Artificial Life and Digital Evolution (Syllabus*, Schedule)

- To earn an A students must have:
  - Satisfied “Advanced” requirements for 4/5 deliverables
  - Satisfied “Core” requirements for all 5 deliverables
  - Earned 50 or more “engagement” credits
- Deliverables:
  - Cellular automaton
  - Artificial ecology simulation
  - Encyclopedia article
  - Digital evolution program
  - Final project



* Note some differences, I’m updating!

An Example in ALife

“Engagement” credits:

- 1 for each reading check for each class day
- 1 for attending class
- 1 for completing in-class labs

Students only need to do every reading check and attend every class to hit 50

Labs are “make up” option

To learn more:
https://gradingforgrowth.com/p/promoting-student-growth-with-engagement

An Example in ALife

From https://gradingforgrowth.com/p/the-four-pillars-of-alternative-grading

Digital Evolution Assessment

Core requirements:

- Run and **display a digital evolution system** when the compile-run-web.sh script is run, using the web-browser, SignalGP-Lite, and Empirical libraries
- Handle the **toroidal spatial structure** correctly (i.e. organisms reproduce and/or move correctly across the edges of the grid when using a grid spatial structure)
- Have at least **two tasks that organisms evolve to perform** within a reasonable amount of time (running your code for about 10 minutes) which are visually represented in your GUI
- Have somewhat well-documented and styled code
  - Lack of duplicate code (i.e. using inheritance) is part of being somewhat well-styled
- Specify in a file README.md what your tasks are and how they are visually represented in your GUI

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TLDR:

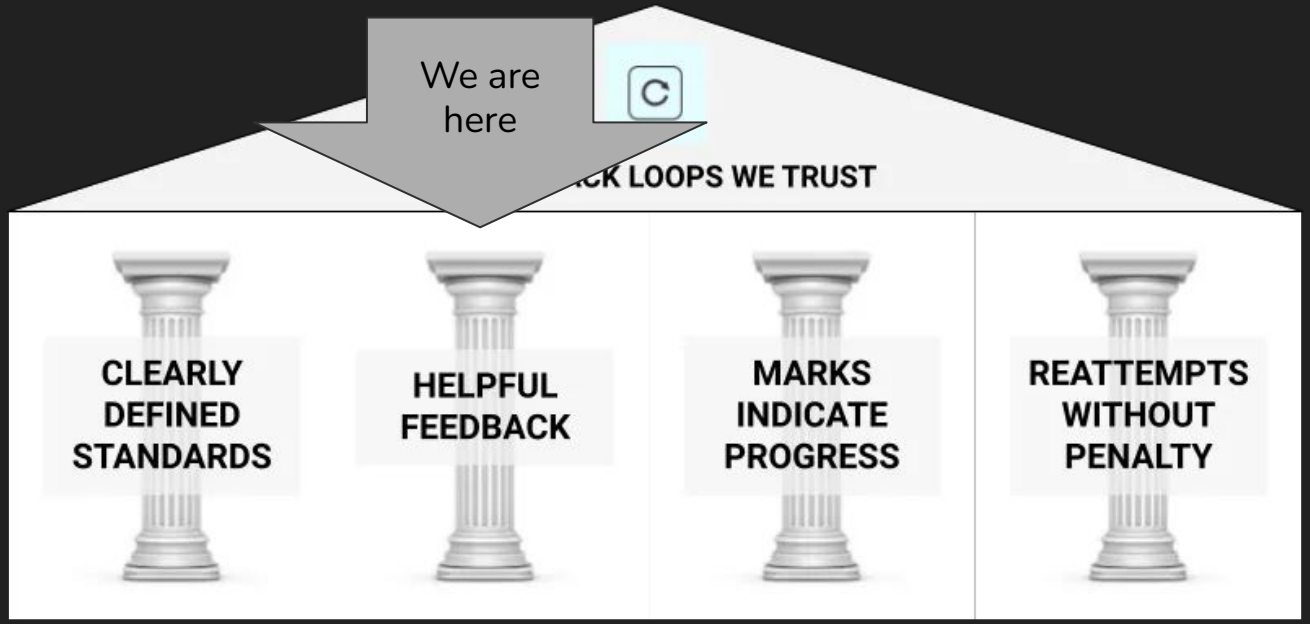
- It works
- It achieves basic functionality of this kind of system
- Somewhat well-styled
- README states what you did

Digital Evolution Assessment

Advanced requirements high-level:

- Output data
- More functionality
- Have a nice GUI with configuration panel and explanatory text
- Very well-styled code

An Example in ALife



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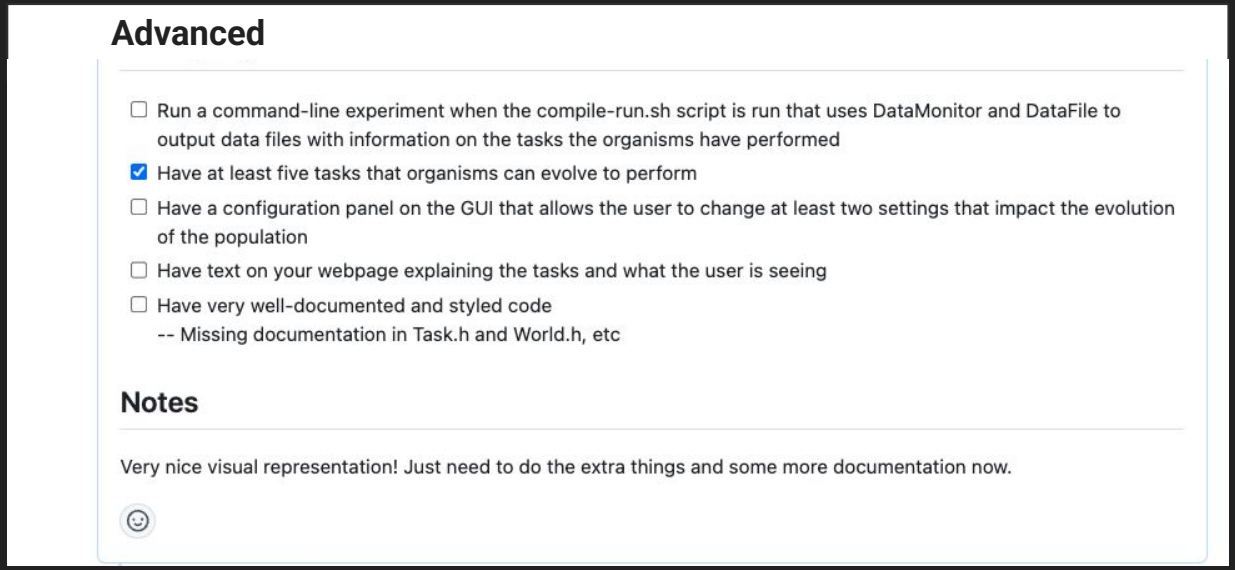
Digital Evolution Assessment

For feedback, I use:

- Gradescope (in lower classes)
- GitHub Classroom (in upper classes)



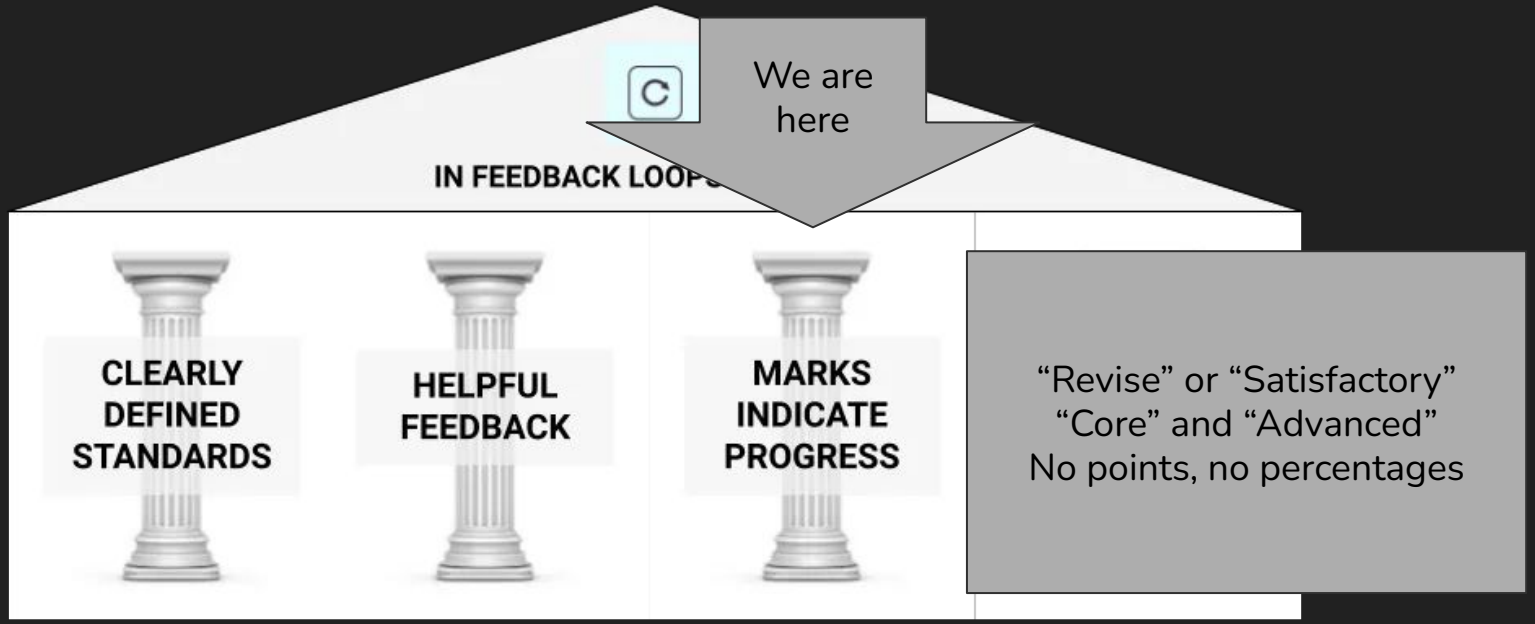
Advanced

- [ ] Run a command-line experiment when the compile-run.sh script is run that uses DataMonitor and DataFile to output data files with information on the tasks the organisms have performed
- [x] Have at least five tasks that organisms can evolve to perform
- [ ] Have a configuration panel on the GUI that allows the user to change at least two settings that impact the evolution of the population
- [ ] Have text on your webpage explaining the tasks and what the user is seeing
- [ ] Have very well-documented and styled code
  -- Missing documentation in Task.h and World.h, etc

Notes

Very nice visual representation! Just need to do the extra things and some more documentation now.

An Example in ALife



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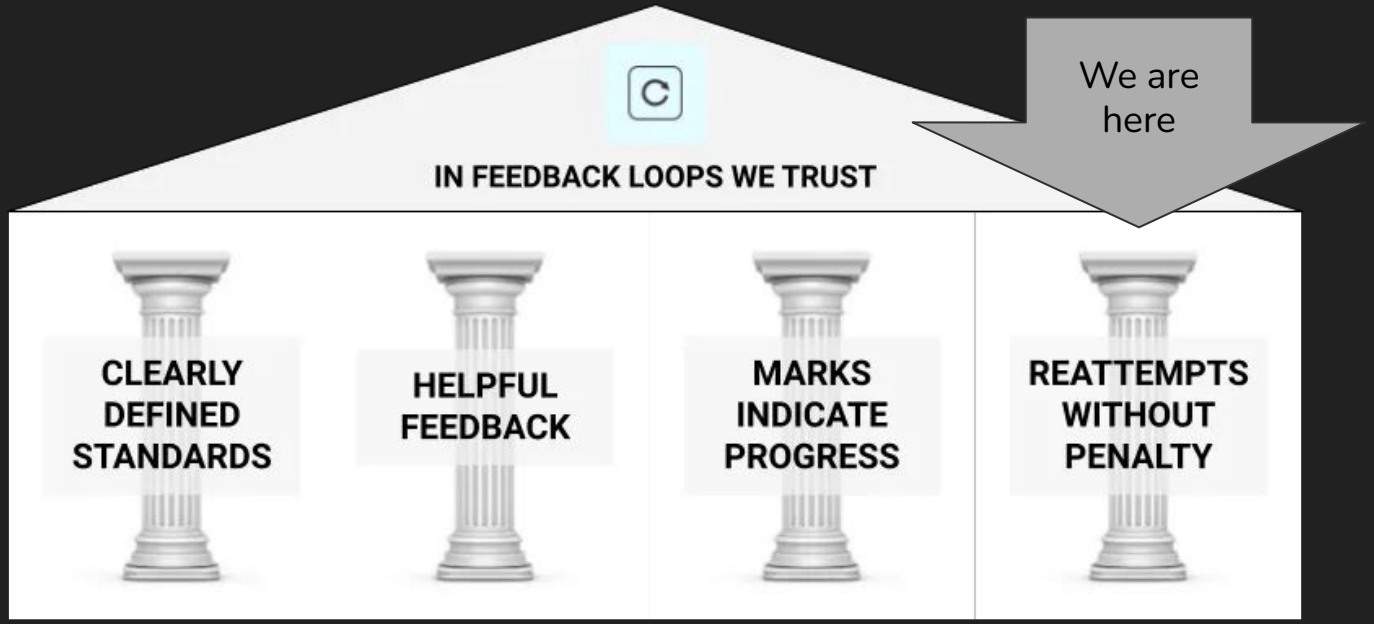

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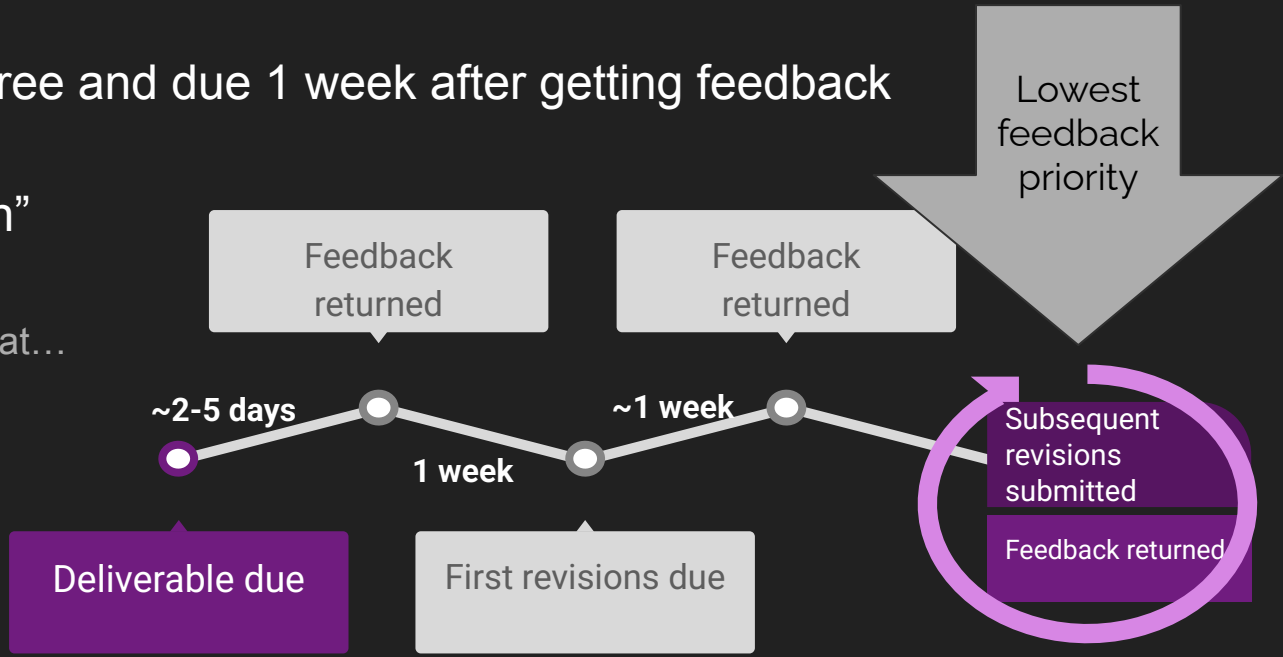
An Example in ALife

Deliverable Revisions:

- “First revisions” are free and due 1 week after getting feedback
- Can submit only 1 “subsequent revision” per week
  - But I never hold to that…



Why I never looked back

- I don’t have to agonize over how many points/how much weight something should have
- They can’t sneak through on partial credit
- Students learn SO MUCH when revising (and they recognize that!)
- I get to talk to my students about things that matter, not points
- I genuinely like “grading”, because it’s like giving feedback to a research student
- It’s wonderful when things “click” for a student halfway through the term and they can still earn a well-deserved A

Challenges*

- Some students **don't understand the system** until you corner them and guide them through
  - Solution: I watch out for them and **talk to them** individually
- Deliverables/objectives at the end of the term have **less time for revision** but are usually the most important/hardest
  - Solution: **Build in extra revise/retake time** at the end of the term
- Some students fall into "magical thinking" that they will be able to **put everything off** until the last week and it literally never works out
  - Solution: Again, watch out for them and try to **convince them otherwise** and have written documentation that you **warned them they could fail**…

* For me in my context, your context might change these!

Where to go next

- Skeptical? -> Teaching More by Grading Less (or Differently)
- Want to know more? -> What to expect when you're alternatively assessing and The Case Against Grades
- Ready to dive in? -> Standards and Contracts and Competencies, oh my!, Grading for Growth (book), Ungrading (book)
- Have questions? Join the Alt Grading in Higher Education Slack!

Thank you and please stay in touch!

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https://anyaevostinar.github.io/

ALife-Edu