

About

This workbook is designed for the [Tapia 2021 Workshop](#) facilitated by Sarah M Brown and Victoria Chávez. If you did not attend the workshop, this workbook can still provide resources and guidance on equitable assessment!

Workshop Overview

In this workshop, we will discuss assessment from the assignment level to the course level that aligns with learning and equity. We will first outline key terms, show how assessment can encourage learning and support equity. Next, participants will practice applying the new terminology and theoretical grounding by studying examples. Finally, participants will get to revise materials for their own courses.

Using the Workbook

If you're familiar with Github, you can [fork this workbook's repo](#) to work through the case studies and templates. You can also copy-paste the prompts and examples onto your editor of choice or even print the pages to work offline (**workshop attendees**: please don't work offline during the workshop).

For Workshop Attendees

During the Workshop, we will guide you through several activities ([see our full agenda](#)) to modify your course(s) to better motivate and engage students via centering learning and equity in your courses' assessment. **Please keep your work in an virtually-shareable format for the peer feedback portion of the workshop.**

For Workshop Non-Attendees

If you weren't able to attend the workshop, you can use our detailed activity information, case studies, and templates to revise your syllabus and/or assignments.

Contributing to the Workbook

Contributions are welcome! To submit revisions, additional case studies or templates, or resources, please [submit a pull request on Github](#).

Introduction

Assessment can have a big impact on our students.

Grading for Learning

While students often view the work they do in class as a means to a grade, our goal as instructors is typically that the activities we ask them to do help them learn.

We can focus the way we evaluate that work to center students learning to help direct their attention to their own learning.

Key features

Equitable Assessment

Key features of equitable assessment:

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Using Case Studies

The **Case Studies** section contains examples of assignments and (the grading section of) syllabi that demonstrate some principles for grading that support learning and equity.

Workshop Attendees: In your breakout group, take about 15 minutes to discuss one assignment and one grading scheme.

For each case study, answer the following questions:

1. Which principle(s) are applied?
2. How is the principle you identified applied?
3. What do you like about this case?
4. What would you want to change?
5. What questions do you have about case study?

Using Templates

This section of the workbook is designed to support you in applying the principles discussed previously to your own course(s).

Workshop Attendees: Take about 10 minutes to complete the steps below. **Please keep your work in an virtually-shareable format.** In the next part of the workshop, you will receive and provide peer feedback.

1. Decide if you will revise assignments but keep your grading scheme **or** will focus on revising your grading scheme and policies and have assignments follow.
 - Keep in mind that revising your grading scheme will most likely mean eventually having to modify each assignment's grade breakdown for it to make sense with the overall scheme.
2. Choose any of the templates or guided design documents under the **Templates** section.
 - Make sure to keep notes for yourself as well as a before and after copy of your syllabus and/or assignment(s).
3. Consider 1-2 questions or concerns you have to focus your peer feedback so that it's the most helpful.

Peer Feedback

Peer feedback is crucial in course development and refinement. Your peers may notice or think about things you haven't considered and they may have resources or advice to share!

Workshop Attendees: In your breakout group, take about 10 minutes to take turns describing the changes you've started working on, the questions or concerns you have, and providign feedback for your peers. If you're able to share your work via a link, file, or screenshare, please do so. Provide any feedback or advice you think will be most useful for your peers. Make sure to keep it concise so everyone is able to share!

Reflection

After receiving feedback, it's good practice to reflect on what we've changed and what we've learned before piling on more changes. As questions come up, we should also do our due diligence to have those questions answered by our peers, others who have done similar work, or teaching adn learning experts at our institution's center for teaching and learning.

Workshop Attendees: As a whole group, we will take about 15 minutes to reflect on your modifications, the feedback received, and the questions you have for moving forward. Presenters will pose reflective exercises and answer participants' questions.

Reflective Questions to Consider:

1. What are your overall thoughts on starting these revisions?
2. How was the peer review? Did you learn something helpful?
3. What is the one most important change you plan to make to your course based on the workshop today?
4. What questions or concerns do you have?
5. Are there any 'blocks' preventing you from making updates to your course(s)?

Scheme: Competency-Based Grading in Programming for Data Science

Full Sites:

- [Fall 2020](#)
- [Fall 2021](#)

This course uses a competency-based grading scheme and assesses assignments on specification against an overall course rubric.

Instructor Process

I broke down the course learning outcomes into 15 component skills and wrote three outcomes for each describing a skill acquisition expected for each skill. This describes each of the 45 (15*3) achievements that constitute the students' grades.

System basics

To earn an A required all 45 achievements, a B required all level 1 and level 2 achievements, a C required all level 1 achievements. Students could earn level 1 achievements in any activity: class participation, weekly programming assignments, or a portfolio submitted 4 times through the semester.

Level 2 achievements could be earned only on assignments and portfolio checks.

Level 3 achievements could only be earned on portfolio checks.

In class questions checked basic understanding through multiple choice questions and short programming problems.

These were cumulative only, not graded as a percentage correct. Assignments were designed to assess level 2 achievements, such that each skill was assessed in at least two assignments. Portfolios were open ended, encouraging students to use general prompts to explore the material deeper than was covered in class, guided by the level 3 achievement definitions.

Equity and learning focus

The grade was not based on averaging performance across activities; the basis was the material only. Students had at least 2 chances (and mostly many more) to earn every single achievement. A student could require 2 attempts at every single achievement and still earn an A. Students could skip assignments as they deemed necessary for their regular schedule. Because the grade was cumulative, students focused on their learning; gradient was that they had to demonstrate understanding: both applying material and communicating well enough.

Assignment: Data Science Portfolio

[live site](#)

Submissions

Students submitted their portfolio as a jupyter book via GitHub classroom. They added more to the same repository over the course of the semester.

Prompts

Overall

The prompts provide a starting point, but remember that to earn achievements, you'll be evaluated by the rubric. You can see the full rubric for all portfolios in the syllabus. Your portfolio is also an opportunity to be creative, explore things, and answer your own questions that we haven't answered in class to dig deeper on the topics we're covering. Use the feedback you get on assignments to inspire your portfolio.

Each submission should include an introduction and a number of 'chapters'. The grade will be based on both that you demonstrate skills through your chapters that are inspired by the prompts and that your summary demonstrates that you know you learned the skills. See the formatting tips for advice on how to structure files.

Correct an Assignment

Choose an assignment that you did not achieve the target level for. Write a blog style notebook analysis that corrects what you could have done better, what you learned, and addresses the misconception if applicable.

Note

To get credit for this, student had to not only correct, but truly reflect and explain.

Deeper Analysis

For one of the assignments, if there was something you were curious about. Try it out and investigate how to answer it. Vary parameters and document your investigation.

New Analysis

For a topic of interest, clean, explore and model the data. Work with messy data or data provided in multiple files to earn prepare and construct achievements or use clean data to earn only EDA and modeling achievements.

CheatSheet

Make a cheatsheet with examples of the several different parameter settings for common operations for one topic.

This cheatsheet is an example, it's too broad, but it's the same idea. Yours should cover one topic in greater detail and demonstrate your skill according to the rubric.

Syllabus: Skill Acquisition Rubric

Building out this rubric is the first step in designing a competency-based grading scheme like Sarah's [Programming for Data Science](#)

Keyword	Skill	Level 1	Level 2	Level 3
a single word	multiword phrase that summarizes	a learning outcome at the basic level	a mid-level learning outcome	an advanced level learning outcome

Assignment: Portfolio

1. How will students submit the portfolio (in form)?
2. How often will student submit for feedback?
3. How often should they work on the portfolio?
4. What kind of content will students contribute to their portfolio?
5. What kinds of prompts will guide their work?

Frequently Asked Questions (FAQs)

Click a question or concern to expand its answer or suggestion below.

Getting Started Questions

Can these principles apply to my subject area?



Will applying these principles make grading take more time?



Are these practices evidence-based?



How long does it take for students to understand and get used to alternative grading schemes?



How have students adapted to these new systems? I'm concerned that all of these different grading systems will make the students confused/anxious.



How much pushback should I expect from students?



Logistics Questions

My LMS doesn't support alternative grading structures.



My LMS doesn't support peer-grading.



How can I apply these principles while using automated grading?



When resubmissions are allowed, how much feedback do you provide?



Does allowing resubmissions or flexible deadlines mean more grading? Are there a lot of last minute submissions?



What is the trade off of extra flexibility and allowing continual re-submissions. Will this set a precedent that students expect all deadlines and work can be flexible or changed? Do you think not having deadlines or having flexible deadlines negatively impacts them in the real world where they need to meet deadlines in their jobs?



Additional Resources

By Sarah M Brown and Victoria Chávez

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