

Data 301 - Class 12C

Final Exam Logistics

March 31, 2023

Reminders

Reminders

- Today: Final Exam stuff
- Monday: Project Feedback time
 - Me and 2 Project TAs will be present from 10-11 AM
 - Student hours afterwards from 11 AM -12 PM
 - Best opportunity to get feedback on your project!
- Wednesday: Bonus Test 4

Reminders

- Milestone 5: Due April 6th at 6 PM
- Milestone 6: Due April 11th at 6 PM
 - No extensions are possible beyond the grace period!!
- Final Exam: 2.5 hours scheduled exam - check SSC for the details

Evaluation

The grading scheme for this course is:

Item	Weight	Due date(s)
Learning Logs	10% (10 x 1%)	Saturdays at 6 PM
Labs	30% (10 x 3%)	Wednesdays at 6 PM
Project	25%	Variable
Tests	20% (4 x 5%)	Wednesdays during class (except Bonus Tests)
Final Exam	15%	TBD (during the exam period)

There will be 4 tests in this course in an (approximately) bi-weekly schedule. For each of the tests, there will be a bonus test one week later and the better score of the Test-Bonus Test pair will be taken.

Passing requirements

- All students must satisfy ALL conditions to pass the course:
 1. Obtain an average grade of at least 50% on the Labs,
 2. Obtain an average grade of at least 50% on the Test and Exam components together,
 3. Obtain a grade of at least 50% on the course Project,
 4. Obtain an average grade of at least 40% on the Final Exam,
 5. Obtain a grade of at least 50% on the whole course.

If students do not satisfy the appropriate requirements, the student will be assigned the **lower** of their earned course grade or, a maximum overall grade of 45 in the course.

Final Exam Process and Format

Final Exam Process

- This final exam is open-book, open-notes, and open-web
- Same rules as the Tests, you cannot use cheating websites like Chegg, Coursehero, Slader, ChatGPT, or similar sites.
 - Stack Overflow is fine, but please remember to cite any sources you use!
- You MUST do the test **ALONE, BY YOURSELF**, with no communication with any classmates or otherwise
- Violating exam rules will result in 0% in the final exam, and failure in the course

Final Exam Process

- You will see an assignment on Canvas that contains the link to accept the final exam on GitHub Classroom
- You should be committing **using the terminal** at least once after every task.
 - Failure to do this, or to use the web-uploader or GitHub desktop will result in a 5% penalty **each time** you don't do it (forgetting is not an excuse)
 - I have added reminders in your exam, so as long as you read the instructions, things should be okay!

```
In [11]: # Your solution here
```

At this point you are done Task 1 so you should use the Terminal to add your changes to GitHub!

Please do not use the web uploader or any apps to make this commit. You may come back later and add/change anything you like up until the Exam window. Just remember to add another commit and push it to GitHub.

Move on to [Exam_Task2](#) for Task 2.

Final Exam Format

80% GitHub and Jupyter Notebook
(like the labs)

20% Reflection
(like LLs)

Data Analytics

Q1

Q2

Q3

Q4

Final Exam Format

80% GitHub and Jupyter Notebook
(like the labs)

20% Reflection
(like LLs)

Loading, Merging, Cleaning, and wrangling data

Create python functions and apply them to data frames

Conduct Exploratory Data analysis

Choose and create Data Visualizations

Create and answer research questions based on a dataset

Q1

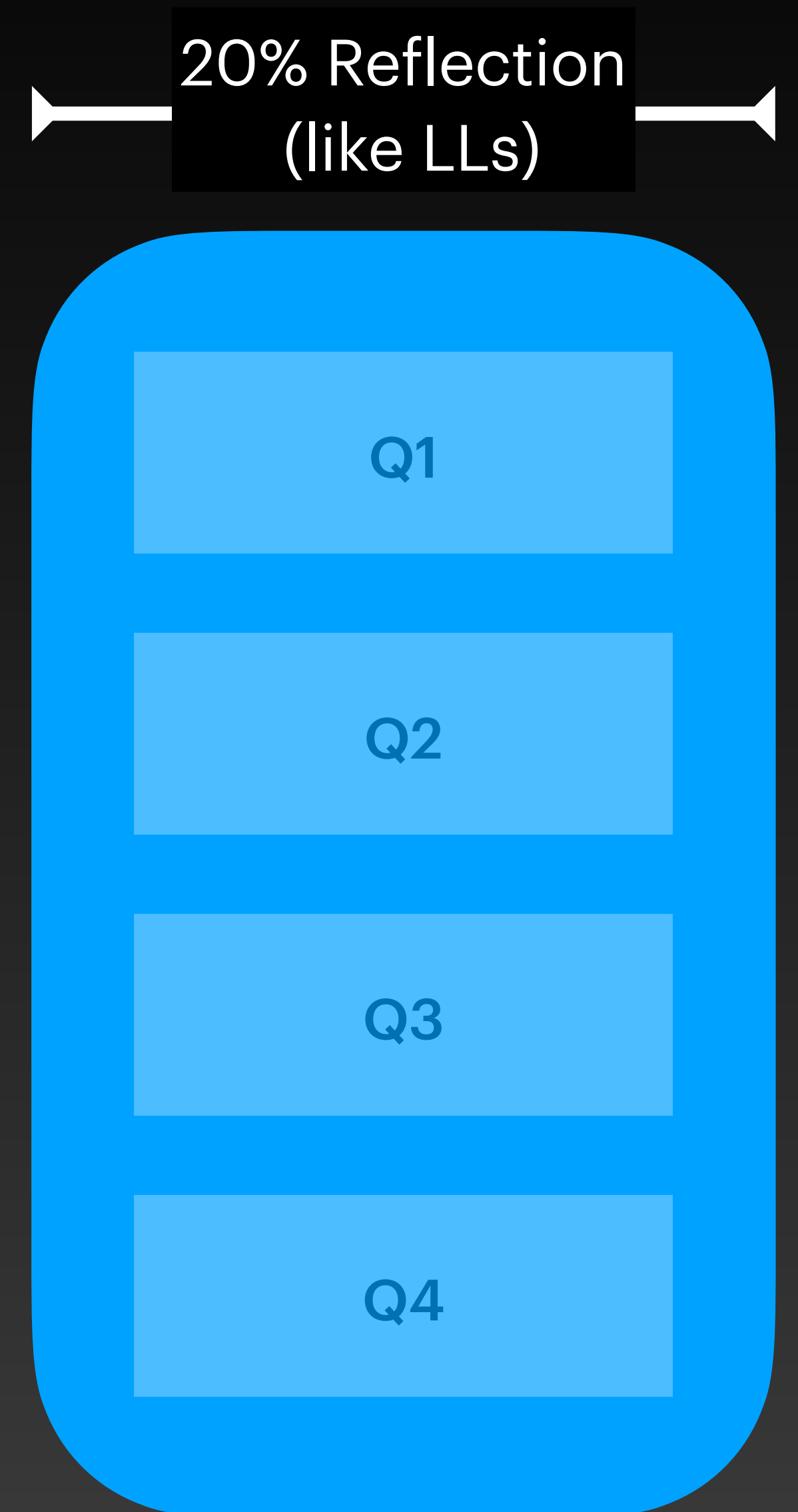
Q2

Q3

Q4

20% Reflection

IMPORTANT: YOU SHOULD PREPARE YOUR ANSWERS AHEAD OF TIME and copy/paste them in during the exam!



20% Reflection

Q1.1 Final Exam Deserved Grade

1 Point

Just as we have done each week in the course, I would like you to estimate your **deserved grade on the final exam** (please make sure you answer this question only after completing all other Tasks on the Final Exam).

Please provide a number between 0 and 100% corresponding to your deserved grade on the **final exam** for this course:

=50+-50

20% Reflection
(like LLs)

Q1

Q2

Q3

Q4

20% Reflection

Q2 Beauty of Data Science

6 Points

Carefully consider **one data science concept** from this course that you found "beautiful" or "inspiring"; explain the concept, and why you found it beautiful or inspiring. The definition of beautiful relevant for this question is: "pleasing to the senses or mind aesthetically."

Your answer should be approximately 3-5 sentences and have the following requirements:

- Explain the concept in a way that would be understood by a future Data 301 student that has never taken a computer science class before.
- Address how this beauty is similar to, or different from other kinds of beauty that human beings encounter (in nature and in the world, etc...).

20% Reflection
(like LLs)

Q1

Q2

Q3

Q4

20% Reflection

Q3 Benefits of Data Science to our society

6 Points

How has your imagination been enhanced as a result of taking this class? Consider how the ideas discussed in this class may benefit society, and our world.

You should give at **least three examples** of how things you learned in this course either expanded your horizons, or made you imagine how the world could be a better place because of the concepts described in this course.

Hint: If you're stuck and need ideas, consider our discussions on effective visualizations and the power and peril of visualizations. Or, you may consider the effects of Dashboards, or use of common technologies like Excel to help communicate complex information and empower people to be more data literate.

Your answer should be approximately 5-7 sentences in total. To help you, I have added three boxes so you can identify three independent thoughts/examples.

Example 1:

Example 2:

Example 3:

20% Reflection
(like LLs)

Q1

Q2

Q3

Q4

20% Reflection

Q4 Deserved Grade

7 Points

As an educator, I am very aware that learning is not easily measured by scores on labs, tests, and exams. There are many other ways and sources of learning, and I admit that not everything can be captured by the assessments that I give you.

Pretend that there were no guidelines in the syllabus for calculating your final grade. Based on the work that you have done all semester, and the learning goals for the course, what grade (out of 100) do you think you have earned?

Here are the learning goals for this course:

- Understand data representation formats and techniques and how to use them.
- Work with large datasets and learn to manipulate them programmatically.
- Experience using a wide-range of data analytics tools including Excel, Git, Python, Pandas, Tableau, and other visualization packages and software.
- Develop a computational thinking approach to problem-solving and use programs to solve data tasks.

Try NOT to focus on calculating your earned grade and avoid mentioning or referring to average grades on the labs, tests, lecture activities, or even the posted grade with your grade before the final exam.

What is some other evidence of your learning? Consider not just what you have learned, but how much effort you put into the course (and whether that effort was productive or not), and honestly assess how much of the material you feel truly comfortable with.

What grade do you deserve in this course? Why?

20% Reflection
(like LLs)

Q1

Q2

Q3

Q4

Q4.1 Your Response

7 Points

Your answer should be in two parts:

A number between 0 and 100 corresponding to your earned or deserved grade in **this course**:

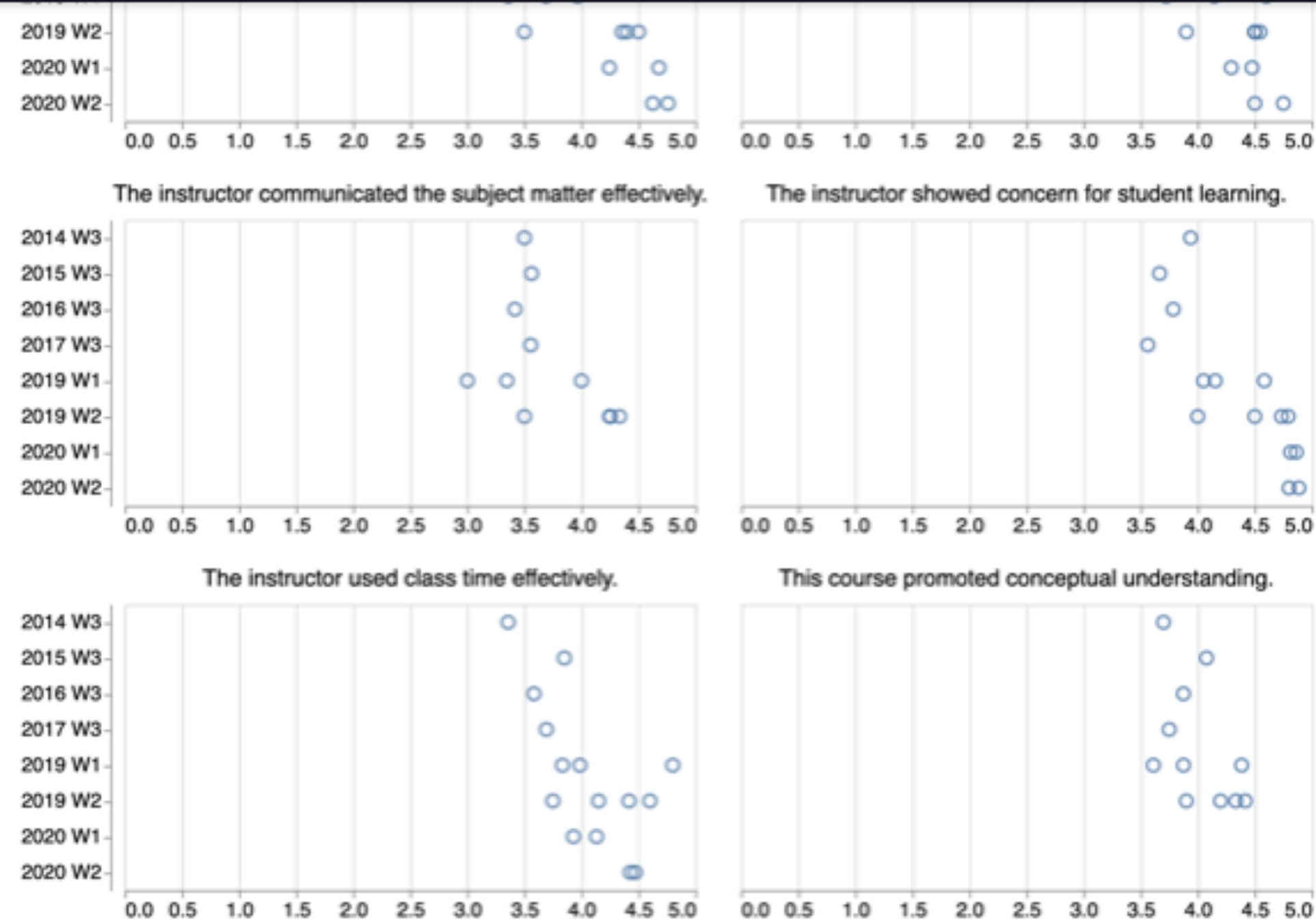
=50+50

Approximately 3-5 sentences with an explanation/justification of your earned grade in **this course**.

Student Experience of Instruction (SEI)

Search...

Past Courses



I am a strong believer in transparency and openness so on this page, I will also be sharing my full teaching evaluations. This is definitely a moment of vulnerability as these are often considered private. However, I think that students should know exactly what they're walking into when they take my course. I am not the perfect instructor, and my teaching is constantly evolving. I also read and reflect upon every comment that I receive so also keep in mind these comments are from the past. I have definitely made mistakes in the past, and am always seeking to improve and better my teaching, as well as your learning.

Without further ado, my teaching evaluations from the past few terms (I will continue adding to this list as time permits):

- [Physics 111, Winter 2020 Term 1 \(Online\)](#)
- [Data 301, Winter 2020 Term 1 \(Online\)](#)

You will receive an email starting April 1 that the “Student Experience of Instruction” (SEI) is now open for this course.

Research shows that SEI are flawed because they are influenced by unconscious and unintentional biases.

Despite their flaws, SEIs are used by departments to:

- **Make decisions on Tenure and Promotion**
- **Decide which courses instructors teach**
- **Rate/rank grant applications and awards**

More important to me however, is how you felt about the course content, the structure, and me as an instructor.

I want to hear from you!

My goal is to get at least a 70% response rate on the SEI, the more the merrier!



Account



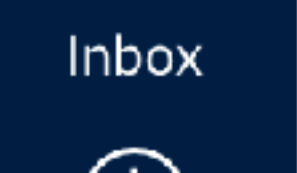
Dashboard



Courses



Calendar



Inbox



History



Help

2021W1

Home

Announcements

Assignments

Course Content

Course Evaluation


Ed Discussion

Gradescope


People

Zoom

Recent Announcements

 **Project Student Hours**
Hello everyone, I've heard some students were having trouble acc...
Posted on: Oct 20, 2021 at 5:09pm

 **QSCU Intro to Git and Intro to Python Workshops**
Hi All! The QSCU (Quantitative Sciences Course Union) is hosting...
Posted on: Sep 20, 2021 at 9:37pm

 **Week 3 Announcements**
Hello everyone, This week I am posting the announcements on C...
← Reply
Posted on: Sep 18, 2021 at 12:25pm

DATA 301 101 2021W1 Introduction to Data Analytics



Suggestions for how to study for the final exam

- **Focus your studying (Tableau, Excel, and git will not be tested)**
- **Review all the labs**
- **Review all the tests (Particularly Tests 2 and 3)**
- **Get familiar with some of the more common pandas functions**
- **Know how to write functions**
- **Know how to do an EDA**
- **Be very familiar with the seaborn library !**
- **Don't panic!**

Teaching Pedagogy and Growth mindset

Course Learning Intentions

Learning Intentions

The learning intentions for this course are to:

1. Understand data representation formats and techniques and how to use them.
2. Work with large datasets and learn to manipulate them programmatically.
3. Experience using a wide-range of data analytics tools including Excel, Git, Python, Pandas, Tableau, and other visualization packages and software.
4. Develop a computational thinking approach to problem-solving and use programs to solve data tasks.

[nature](#) > [npj science of learning](#) > [articles](#) > [article](#)

 Article | [Open Access](#) | [Published: 12 November 2021](#)

Interleaved practice enhances memory and problem-solving ability in undergraduate physics

[Joshua Samani](#) ✉ & [Steven C. Pan](#) ✉

[npj Science of Learning](#) **6**, Article number: 32 (2021) | [Cite this article](#)
2998 Accesses | **86** Altmetric | [Metrics](#)

Abstract

We investigated whether continuously alternating between topics during practice, or interleaved practice, improves memory and the ability to solve problems in undergraduate physics. Over 8 weeks, students in two lecture sections of a university-level introductory physics course completed thrice-weekly homework assignments, each containing problems that were interleaved (i.e., alternating topics) or conventionally arranged (i.e., one topic practiced at a time). On two surprise criterial tests containing novel and more challenging problems, students recalled more relevant information and more frequently produced correct solutions after having engaged in interleaved practice (with observed median improvements of 50% on test 1 and 125% on test 2). Despite benefiting more from interleaved practice, students tended to rate the technique as more difficult and incorrectly believed that they learned less from it. Thus, in a domain that entails considerable amounts of problem-solving, replacing conventionally arranged with interleaved homework can (despite perceptions to the contrary) foster longer lasting and more generalizable learning.

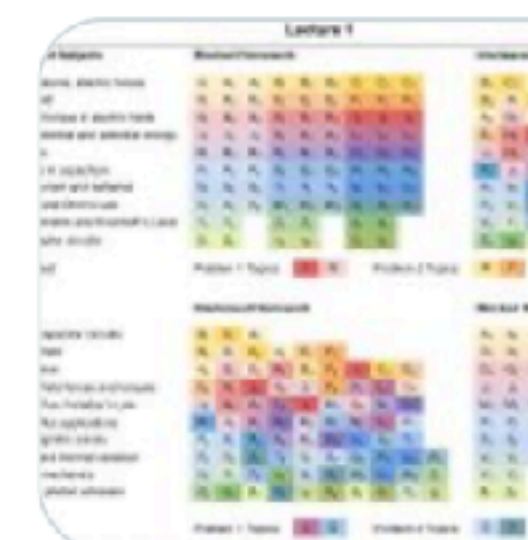


Daniel Willingham

@DTWillingham



College physics students learn more from interleaved practice, think they are learning less



nature.com

 Interleaved practice enhances memory and problem-solving...
 npj Science of Learning - Interleaved practice enhances memory and problem-solving ability in...

6:28 AM · Nov 27, 2021 · Twitter Web App

62 Retweets **13** Quote Tweets **231** Likes

Growth Mindset

Why Does Mindset Matter?

Designed by GA-CTL Workgroup: Crystal Edenfield
Rhonda Porter
Deborah Walker
Joyce Weinsheimer
Lisa Yount



Why Does Mindset Matter?

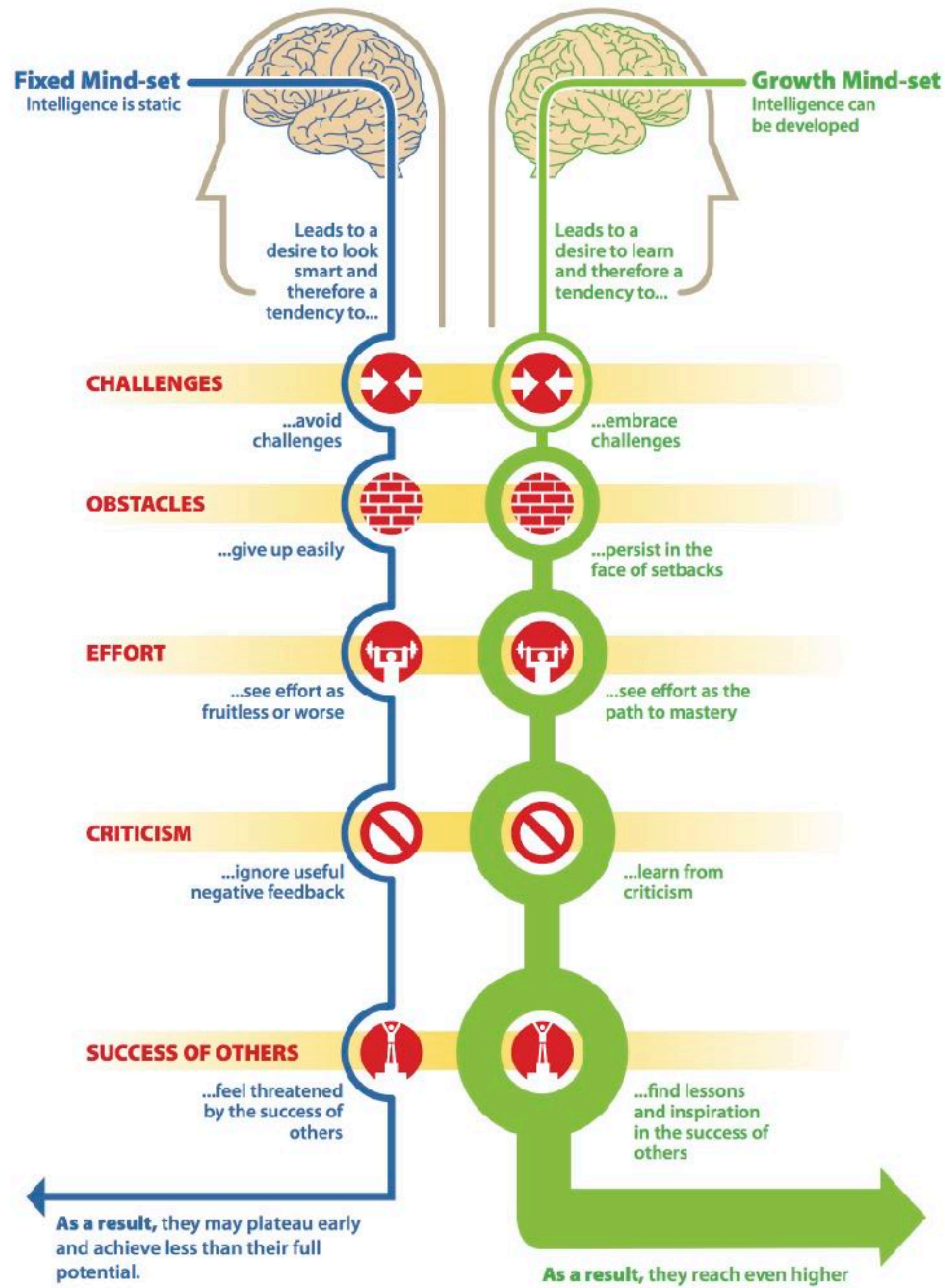
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Joyce Weinsheimer
Lisa Yount

What is mindset?

Mindsets are beliefs and perceptions about learning.

Fixed vs. Growth

- A fixed mindset is based on the belief that your qualities are carved in stone
- A growth mindset is based on the belief that your basic qualities are things you can cultivate through your **efforts**, your **strategies**, and **help from others**



By Nigel Holmes based on the work of Carol Dweck

Why does mindset matter?

Resources

Books

- Dweck, C. (2016). *Mindset: The new psychology of success*. Penguin Random House, New York, New York.
- Major, C. H., Harris, M. S., & Zakrajsek, T. (2016). *Teaching for learning: 101 intentionally designed educational activities to put students on the path to success*. Taylor & Francis, New York, New York.
- McGuire, S. Y. (2015). *Teach students how to learn: Strategies you can incorporate into any course to improve student metacognition, study skills, and motivation*. Stylus Publishing, Sterling, Virginia.

Websites

- <https://www.mindsetkit.org/topics/about-growth-mindset/what-is-growth-mindset>
- <http://mindsetscholarsnetwork.org/>