Spring 2023, Math 48A.01 with Jeff Anderson, Flipped Classroom Activity List

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Foothill College, Math 48A, Spring Quarter 2023
Introduction to Flipped Classroom Activity List
by Jeff Anderson

This class is designed using a flipped-learning model for instruction. Let's compare the way college classes are usually conducted, which we'll called the lecture-based model, to the way we engage in flipped learning. The *lecture-based model* for instruction forces you to do the hardest learning tasks when you are by yourself outside of class. In this model, a teacher dedicates in-class time to low-level learning activities. Specifically, in the lecture-based model for instruction, a student gets their first exposure to course content during in-class meetings via a live lecture delivered by the teacher to a room full of students. Such lectures are usually given in a monolog-style speech where the vast majority of the speaking is done by the teacher to the students. By the end of the lecture, teachers have presented a long list of technical ideas without much student participation. After the in-class meetings end, students are expected to engage in higher-level learning activities like sense making, problem solving, and creative work.

In a lecture-based classroom, the out-of-class activities typically involve deeper thinking and harder intellectual tasks. But, because in-class meetings are filled by the teacher talking at you, this leaves no time for collaborative group work to support deeper learning. Notice that in a lecture-based classroom, you do not have to prepare before class. You simply show up and passively observe the teacher. After the lecture ends, you are expected to do the hardest part of learning when you are alone outside of class, isolated from your peers, and away from the teacher.

The flipped-learning model uses in-class time very differently than the lecture-based model. In our flipped learning classroom, we develop the expectation that you are responsible to do lots of hard work preparing for our in-class meetings. To get ready for each in-class meeting, you might spend 3 - 6 hours of focused attention. This can be dedicated to completing assignments, creating your own notes to understand new content, engaging in problem solving practice, or reading that improves your ability to learn. For the main mathematical idea in this class, you can get your first exposure to course content before our in-class meeting by either watching my YouTube videos that cover course content or by reading my lecture notes. For each video I make, I offer notes that cover similar content as is presented in the video. So, you have a choice of how you engage with the course content: either via YouTube videos or reading lecture notes.

One of the powerful features of this flipped learning model in which you explore new material before class begins is that you can customize your experience. You have much more control over how you use your time and the ways you engage with the content. You can explore at your own pace, push pause on the videos, rewind, and focus on deep understanding. You can get creative with how you capture what you are learning. You can focus on making sense of the material during your first pass through rather than mindlessly copying everything a lecturer presents on the board. You can take extra time to write down your questions and capture your own thoughts about the content. You can process the information slowly to build deeper connections between new ideas and your previous learning. Moreover, since your first contact with the content happens outside of class, we can repurpose our in-class time for higher-level learning tasks.

During our in-class meetings, you will leverage the preparations you do before class to engage in collaborative learning with your classmates during class. For example, before each class in weeks 1 - 2 this quarter, you will complete a conquering college laboratory activity and bring your work into class. This work will set the foundation for interactions between you and your classmates. Specifically, you are going to share your completed work with other students in class and vice versa. Together, you're going to read each other's work and give feedback on what you see.

One of the most important things we will do in weeks 1 - 2 is create a foundation for trusting relationships with our peers. To collaborate effectively, we need to be able to trust each other. Towards this goal, we begin each class during weeks 1 - 2 with a think-pair-share activity. We'll talk more about this during class 2. The major goal of all this work is to challenge each of you to engage in peer-instruction, peer-evaluation, and collaborative learning as a fundamental part of what we do during in-class meetings. These are very high-level learning tasks. Every minute you spend preparing before our in-class meetings enhances your ability to contribute to your peers learning experience and to the culture of learning that we create together.

When you pose questions to other students in our class, teach other students, give feedback to others, listen to your classmates, you push yourself and your peers to become more skilled with the content. Similarly, when you work to answer other peoples' questions in meaningful ways, you develop new expertise and explore new facets of the knowledge you're building. Indeed, one of the best ways to learn new content is to teach others. I like to say: "The who can, do. Those who teach, do better" Every in-class meeting is an opportunity for peer instruction and collaborative learning. The sooner you develop system to capture your questions outside of class and engage in question-and-answer sessions with your classmates, the more effective you will be at leveraging in-class meetings to dive deeper into course content. In addition to the dialog rich meetings with your classmates, you will also be working on shared problem solving. For each lesson in this class, I've drafted a list of problems designed to push you beyond the lecture content to synthesize new understanding and deepen your learning. We'll explore more about this next week.

For now, I want to share a document that we will use to facilitate the flipped learning environment. Below is a flipped learning activity calendar. You'll notice that page 1 of this document includes a detailed course calendar. If you click on any of the links highlighted in blue, this will lead you to the associated activity list for that link. That activity list includes three types of activities:

1. Activites you finish by yourself before class
2. Activities we work on together during class
3. Activities you finish after class.

You can use this as a guide to focus your energy and stay on track for this class. Let's begin by exploring the Class 1, 2, 3, and 4 flipped learning activity lists. I do expect that you finish every single item on these lists as part of how you engage in this class. We can talk through this expectation and the power you have to negotiate during our work together.

CLASS 1 : Monday 04/10/2023

Instructor Sickness : Jeff Canceled Math 48A Class Today

CLASS 2 : Monday 04/12/2023

BEFORE CLASS

- ☐ Read Jeff's "Welcome to 48A and here are the first few assignments" email
- ☐ Read Jeff's "Instructor Sickness = See you Wednesday 4/12/23 at 1:30pm in room 5611" email
- ☐ Read Jeff's course website FAQs (.pdf) attachment

DURING CLASS

- ☐ Introduction to class
- ☐ Complete the Class 2 : Think-Pair-Share Activity to Explore Your Purpose.
- ☐ Meet with Jeff individually to share your preferred name, your email address, and your phone number.

  You'll know that you've done this item as soon as Jeff sends you a text message from his google voice account. If you don't have a cell phone, you and Jeff can chat about other options for out-of-class communication.

- ☐ Get started on Conquering College Lab 1: Schedule to Succeed.
- ☐ Group question and answer period and getting ready for next time.
- ☐ Jeff's reading challenge: how many books can you read this term outside of your school work?

  Remember: your classes are vegetables and this type of extracurricular learning is dessert. And, like any one who cares for you, I will say: veggies have to come before dessert.

AFTER CLASS

- ☐ Finish any and all check list items from above that remain incomplete.
- ☐ Look ahead to class 2 plans and finish the "Before Class" action items.
- ☐ In your free time, begin (or continue) to read books that will help you improve your skills as a learner. For some suggestions, please read:
  - ☐ Jeff's What is deep reading blog post.
  - ☐ Jeff's 40+ books to enhance and deepen your college education blog post.

  Note: I encourage you to rent the books from your local library to save money as you read. If you like the book you read a lot, then you might consider purchasing a copy for yourself to support the author. But, I love it when students get access to great learning resources for no out-of-pocket costs. Your local library is a fantastic way to do this. We'll talk a lot more about reading throughout this quarter.

CLASS 3 : Wednesday 04/17/2023

BEFORE CLASS

- ☐ Complete Conquering College Lab 1: Schedule to Succeed

  Previous students who finished this assignment report that this took somewhere between 3 - 6 hours of focused, uninterrupted work to complete. I've had some students report they take 8 hours to finish this project. Based on my experience, some students do not read this assignment carefully on their first try. If you are spending less than 3 hours on this assignment, then you are probably missing out on some important lessons available in this work. I encourage you to slow down and engage deeply. Note: this is the same assignment I mentioned in my "Welcome and here are the first few assignments" email.

- ☐ Bring a copy of your completed Schedule to Succeed documents to class 2
  - ☐ Your responses to questions 1 - 8 on the Schedule to Succeed : Plan to Fudge It Up Worksheet.
  - ☐ Your first draft of your weekly schedule and your weekly schedule analyzer
  - ☐ Your responses to the Schedule to Succeed : Beware of Scheduling Traps Worksheet.
  - ☐ Your first draft of your term-long calendar

DURING CLASS

- ☐ Class 3 : Think-Pair-Share Activity on Dialogic peer-to-peer learning.
- ☐ Conquering college lab 1 activity: Peer evaluation and feedback (Think-pair-share)

  Pair up with someone you have not yet worked with. Then, discuss what you are learning on Conquering College Lab 1. Use the following questions as a starting point:
  - ☐ What did you most appreciate about this "Schedule to Succeed" activity? Why?
  - ☐ What challenged you in this activity? How do you plan to address this challenge?
  - ☐ What mistakes have you with your scheduling systems on this activity or in the past?
  - ☐ What next steps do you want to take for this "Schedule to Succeed" process?
  - ☐ What changes will you make in your schedule habits moving forward? Why?
- ☐ Full class discussion
  - ☐ Select groups come to voice.
  - ☐ Class-wide Questions-and-Answer session.
  - ☐ Updates on reading challenge.

AFTER CLASS

- ☐ Finish any and all check list items from above that remain incomplete.
- ☐ Look ahead to class 3 plans and finish the "Before Class" action items.

CLASS 4 : Monday 04/19/2023

BEFORE CLASS

☐ Complete Conquering College Lab 2: Prepare for Deep Learning

Past students who finished this assignment report that this took somewhere between 4 - 8 hours of focused, uninterrupted work to complete. I've had some students report they take 12 hours to finish this project. This work is fundamental to everything we do for the rest of the quarter. In fact, I would go so far as to say that if you haven't finished this assignment, you will not be ready for the structure of this class. Please read slowly and think deeply about the readings. I also ask that you write thoughtfully. One paragraph is plenty but make that paragraph count: earnestly engage with what I'm asking you to write about.

☐ Bring a copy of your completed Conquering College Lab 2 documents to class 3:

- ☐ Your responses to questions 1 - 6 on the What is Deep Learning Worksheet.
- ☐ Your responses to questions 1 - 7 on the A Model for Deep Learning Worksheet.
- ☐ Your responses to questions 1 - 6 on the The five stages of deep learning Worksheet.
- ☐ Your responses to questions 1 - 6 on the Progress through 5 stages of deep learning Worksheet.

DURING CLASS

☐ Class 4 : Think-Pair-Share Activity (Growth Mindset or Deep Reading Activity)

☐ Conquering College Lab 2 : Peer evaluation and feedback (Think-pair-share)

Pair up with someone new and discuss your work on Conquering College Lab 2:

- ☐ How often do you find yourself in a class where you are assigned work that is either in your comfort zone or in your survival zone? How do you know when this happens?
- ☐ What negative effects do grades have on your ability to engage in deep learning? Why?
- ☐ What type of environments help you get into your sweet spot?
- ☐ What if you could design your own learning project for this course? How would you do so in such a way to spend as much time as possible in your sweet spot?
- ☐ What types of evidence can you produce to show your progress on your learning project?
- ☐ How is the practice of peer-to-peer dialogue and peer instruction related to sweet spot learning? What do you need to do outside of class to be ready to engage in collaborative deep learning during our in-class meetings?

☐ Full class discussion

- ☐ Select groups come to voice.
- ☐ Class-wide Questions-and-Answer session.
- ☐ Updates on reading challenge.

AFTER CLASS

☐ Finish any and all check list items from above that remain incomplete.

☐ Look ahead to class 4 plans and finish the "Before Class" action items.

CLASS 5 : Wednesday 04/24/2023

BEFORE CLASS

☐ Complete Conquering College Lab 3: Prepare for Flipped Learning

This is the first quarter I'm using this activity. My goal is to create an activity that takes you somewhere between 3 - 6 hours to complete. During Class 4, please report back to me how long this took you so I can share that information with future generations of students.

☐ Bring a copy of your responses to the following Conquering College Lab 3 work:

- ☐ Questions 1 - 6 on the Find Deep Learning Spaces Worksheet.
- ☐ Questions 1 - 6 on the Flipped Learning FAQs Worksheet.
- ☐ Questions 1 - 6 on the Create Lecture Notes Systems Worksheet.
- ☐ Questions 1 - 4 on the First brainstorm for your learning portfolio process worksheet.

DURING CLASS

☐ Conquering College Lab 3 : Peer evaluation and feedback (Think-pair-share)

Pair up with someone new and discuss your work on Conquering College Lab 3:

- ☐ What is your current vision for the portfolio you want to build?
- ☐ What questions do you have for your work in this class?
- ☐ What do you need from your teacher in order to be successful this quarter?
- ☐ What worries or concerns do you have for your work in this class?

☐ Watch How to structure your learning groups: interview with past students video (34 min, 56 sec)

☐ Class 5 : Think-Pair-Share Activity (Forming my learning groups)

☐ Full class discussion

- ☐ Select groups come to voice.
- ☐ Class-wide Questions-and-Answer session.
- ☐ Updates on reading challenge.

AFTER CLASS

☐ Finish any and all check list items from above that remain incomplete.

☐ Begin your work to document your mathematical explorations. Specifically, for whatever calendar you and your learning partner/group chose, begin crafting your learning portfolio by taking notes, working on challenge problems, and documenting the deep learning processes that you are using to learn the core content in this course.