

## Learning Logs

You will record all of your learning activities in your learning log. A learning activity might be viewing a video, reading the text, a discussion group post or internet article, working on an assignment, engaging in discussion with other students or any other activity that contributes to your learning or the learning of other students. The purpose of recording your learning activities is to serve as a record of your efforts over the quarter and as the subject matter for reflection upon how and what one has learned.

- **Type.** The primary type of learning activity you engaged generally (i.e. watching a video, attending a lecture, reading, discussion, problem solving, programming, writing, etc.). If your learning activity consisted of several types (they usually do) record the primary or dominant type.
- **Activity.** A short description of the details of the learning activity. It could be a couple words, a phrase, but try to limit the description to at most one short sentence. For example, “Work on Problem 7 part a)”, “Reading chapter 3 section 1”, “Writing an assessment for Student A”, or “Watching a video on summations”.
- **Time Frame.** The time you began and ended your learning activity. This time frame should include any short breaks you take, but not long periods of time dedicated to do other tasks or extended breaks.
- **Duration.** The duration of productive time spent on the learning activity not including breaks. It’s fine to estimate this time but try to be as accurate as possible.
- **Pace.** The pace of your learning activity when compared to your normal pace. You need only to record if you worked at a fast pace, regular pace, or slow pace.
- **Location.** The location of your learning activity.
- **Engagement.** You should record your level of engagement in the learning activity on a scale from 1 to 5 where 1 is disengaged and 5 is fully engaged.
  - **Fully engaged (5)** - You are fully focused on the activity. Your mind only wanders to other on-topic thoughts while working.
  - **Mostly engaged (4)** - You are focused on the activity. Your mind wanders to off-topic thoughts occasionally but you are able to remain on task.
  - **Somewhat Engaged (3)** - You can focus on the activity. Your wandering mind takes you off-task now and then but you always get back to task.
  - **Barely engaged (2)** - You find it hard to focus on the activity. Your mind wanders often to other topics and you find it a struggle to get back on task.
  - **Disengaged (1)** - You can’t focus on the activity. When your mind wanders it’s nearly impossible to get back on task.

Every time you start a learning activity remember to record it by following these steps:

1. **Record the start time** of your learning activity. You may also record other data that you already know or you can leave this until the end.
2. **Complete your learning activity.** While you work if you stop to break or if your mind wanders take note. If you stop unexpectedly for an extended period of time, record the end of the activity. If you stop for only a short period make note of the time spent off task.
3. **Reflect on your engagement** throughout your learning activity. Were you able to maintain your focus? What distracted you from your labors?

4. **Record the finish time** and the other points of data. Write the duration of your learning activity (which can be less than start time minus finish time). Record your engagement and pace.

**Time estimate:** 1-2 minutes per labor

## Learning Group

You will work as part of a learning group. This group of peers share the goal of learning the material in the course. You can rely on each other for guidance in your learning activities. You should spend **at least one hour each week** engaged in shared learning activities, most likely discussions of homework problems and solutions, but not restricted to these activities. Most likely you will want to meet in person or use video chat software online to do this. However, you are not restricted to these methods. Your discussions can also be carried out via text chats or other communication media.

After homework solutions are released you are required to review the solutions of one other member of your learning group. You should rotate this member every unit so that everyone has the opportunity to review and be reviewed by every member of the learning group. During your learning group meeting you should discuss any important corrections or suggestions you have for your peers. You should also listen and be open to their corrections and suggestions on your own work.

When your learning group meets it is important that everyone has an opportunity to engage in the discussion. You can ensure that you get the most out of the discussion if you prepare by reading the homework problems and attempting your own solutions. This way you can spend time discussing where you may be stuck or where you have hints for your peers. You can also help by being conscious of the time your peers have to discuss their problems or tips. It can be helpful to assign a moderator for the session whose role it is to monitor the time everyone gets to contribute or ask questions and ensure everyone has a chance.

When you have your meeting with your learning group follow these steps:

1. **Prepare for your meeting.** Before you meet with your learning group take some time to review the material to be discussed during your meeting. Usually this is a problem posing assignment, peer provided solution or instructor provided solution. Then try to enter a frame of mind that is open to discussing solutions with your peers. Remember to be respectful of others and to expect that others respect you.
2. **Meet with your learning group.** Try to arrive early or on time for your meeting. During your meeting make sure to contribute and make sure to allow time for your other students to contribute as well. Try to stay engaged in the discussion. Take notes, especially when discussing solutions or corrections.
3. **Reflect on your discussion.** After the meeting take a few minutes to reflect on the discussion. Review the notes you took. Write a few follow up notes summarizing some of the key ideas covered in the discussion or any important ideas you don't want to forget.

**Time estimate:** 1-2 hours per unit

## Peer Assessment

After completing the problem-posing assignment for the unit you will assess the solutions of one other member of your learning group. The purpose of this assessment is to revisit the solutions you and your peers provided and review the strengths and weaknesses of those solutions. In this review you have the opportunity to correct any errors. You also have the opportunity to improve dimensions of your solutions other than correctness, like efficiency, conciseness, ease of understanding and composition.

1. **Determine who you will assess and who will assess you.** You may do this in any manner you see fit so long as everyone is assessed by someone and everyone assesses someone else. Further, you should rotate who you assess so that over the units everyone gets the opportunity to assess, and be assessed, by everyone else. One simple means of doing this is to sit in a circle. The first unit you assess the person to your left, the second unit you assess the person across from you, and the third unit you assess the person to your right. Repeat this for the remaining units.
2. **Share solutions with your other group members.** Once you have turned in your assignments you can share them with your group members and discuss the solutions. You may share only with the member who is assessing you but often you will benefit from sharing your solutions with all of your members.
3. **Review and compare the solutions** of your group with your own solutions and the solutions provided by the instructor. Make note of errors, but also make note of different choices made that are correct. Some choices may make the work easier to understand or take fewer steps. Other differences may be stylistic only.
4. **Assess your partner's work.** Place yourself in the role of an instructor. Your goal is to help your student improve their work. For each problem state whether the provided solution is correct or not. In addition you may note how it differs from the correct solution that was provided by the instructor. Be conscious that there are multiple ways to solve most of these problems and we each may have arrived on different correct solutions. In addition, even though we have reached a correct conclusion doesn't mean we have not made errors in our calculations along the way. When commenting on differences between correct solutions remember you may comment on dimensions other than correctness, like efficiency, conciseness, ease of understanding and composition.

Usually as instructors we annotate homework by writing comments right on the work itself, or as a list of comments in a separate document. I will accept either format so you can assess with whatever style you prefer. It should be clear from your assessment both who is doing the assessment and who is being assessed.

**Time estimate:** 1 hour per peer assessment

## Unit Reflections

After each unit you will reflect on the learning activities you engaged in during the unit. You will consider the time spent on the variety of activities and reflect on *what* you have learned from these activities and on *how* you have learned from these activities. You will also attempt to identify ways to improve your learning activities by making them more efficient (i.e. take less time), more productive (i.e.

produce more learning) and more engaging (i.e. keep you interested). The purpose of the reflection is to help retain the information learned and improve future learning activities.

1. **Find a quiet spot** where you can do your work in peace. Be mindful of places where there's too much background noise, even if you feel you're accustomed to it. You want to be able to do your work uninterrupted and in peace and quiet. This will allow you to focus better and do the work below more thoughtfully and mindfully.
2. **Read your learning logs** for the unit. Revisit the learning activities you labored on while working on this unit and the topics that you learned. Try to remember the activities you performed and how effective those activities were to helping you learn the material.
3. **Reflect on what you learned.** You learned new information and skills through your activities. Make a short list of what you learned. Think about how these topics tie in more broadly to other topics you are studying in this class and in other classes. Think about the information and skills that interest you the most.
4. **Reflect on how you learned.** You watched videos, read the textbook, worked on problems, discussed topics with fellow students and your learning group, and possibly other activities. Think about how these different activities help you learn the material in different ways. Think about the activities that kept you the most engaged and helped you learn effectively and efficiently.
5. **Reflect on how your learning activities support achieving your long term learning goals.** We are engaged in learning often not just for learning's sake. We study one unit to prepare us for the next. We study one class to prepare us for another. We study the degree program to prepare us for a career. Think about how your learning activities in this unit support your goals of learning and more, now and in the future.
6. **Write your reflection.** Select some of the thoughts that you found interesting during your reflection. Expand on them and put them into writing. Select at least three different observations to comment on. Focus on activities that are effective and on activities that you can improve upon in future units.

**Time estimate:** 1 hour per unit reflection

At week 5 and week 10 revisit your learning logs and unit reflections for the quarter (thus far). Read each one and note the progress in your learning. In particular note the change in what you have learned and the change in how you have learned. Consider these changes and other changes you might make to improve your learning in the future. Write a 1-2 page reflection on your progress over the quarter.

1. **Read your learning logs and unit reflections.** Take some time to revisit the learning activities of the quarter by reading your learning logs and your unit reflections. While you read them consider the role your learning activities have played in your learning this quarter. Try to identify a theme in your learning activities, a dimension that captures your successes or one that you can improve upon.
2. **Write your midterm or final reflection.** Select a theme or dimension of your learning activities this quarter and explore them in writing. Good themes to select are areas where you are proud of your achievements, growth or learning. Other good themes are areas where you still struggle and

you have a plan to improve your learning efforts in that direction. The best reflections are ones that you can use to guide future learning activities both in University and in life more broadly.

**Time estimate:** 2 hours per reflection

## Corrections

For problem posing assignments you are expected to review the correct solutions with your learning group and to correct errors you made in your own solution. The purpose of the corrections is to revisit both correct and incorrect solutions to review how and why the correct solutions are correct. This will help us retain not only the correct solutions but the methods we used to attain them.

Include any corrections in the unit reflection for the following unit after discussing your solutions with your peers. Include with each correction a short (at most 1 paragraph) reflection on why you made the correction you did, and/or how to improve your solutions in the future.