

CM3110 Transport 1 Study Guide Project

Background

Online/remote courses have become commonplace, and in the current pandemic they are a necessity. The strengths and weaknesses of online courses have been widely debated by instructors and students, and I imagine each of you has an opinion about this. I've read up on online courses and even taken a course in online teaching and here are some observations I have.

In an online course:

1. It's easy for students to fall behind.
2. Instructors may ask too much (the course has too many and confusing requirements) or too little (the experience does not create valuable knowledge or skills).
3. It's hard to be engaged.

I would observe that all three of these observations can be true for face-to-face classes as well.

What to do? Or rather, what will I do in Spring 2021 CM3110 to avoid these pitfalls? Here's my plan.

Dr. Morrison's Plan

1. Use class time for problem solving and interaction between me and the class. We are a small class and this can be a distinct advantage.
2. Put you in charge of your learning by giving you Study Guides that tell you what knowledge and skill set you're aiming for. These Study Guides take the mystery out of what the expectations are for exams and for the course. The Study Guides tell you the knowledge and skills that you're seeking to obtain by taking this course.
3. Give you many resources to aid in your learning. Provided are: recorded lectures from a year ago, recommended books, homework, problem sessions, student office hours. You choose what to use to learn what you need to learn. The knowledge and skills you need to learn are listed in the Study Guides.
4. Assess the degree to which you have learned what you need to learn. There will be five modules and five exams (including the final exam).
5. Help you to keep up. I have provided Planning Calendars to show you how everything fits together with the academic schedule. To encourage "keeping up," at the end of each module you'll submit evidence that you are keeping up. This evidence will be based on the Study Guide for the module. This evidence is the **Study Guide Project**.

The Project

All five Study Guides are available now on the [syllabus web page](https://pages.mtu.edu/~fmorriso/cm310/schedule.html), <https://pages.mtu.edu/~fmorriso/cm310/schedule.html>. The syllabus indicates which topic is

associated with which module and with which week of the course. Also indicated on the syllabus are 1) the videos (“Tues/Thurs Videos from Fall 2019, 75 minutes each; 23 total) that is associated with each classroom period; and 2) the dates of the exams.

Beginning with Module 1, by Friday of the week in which there is an exam, each student will submit a memo of evidence (to Canvas) indicating their knowledge and skills with respect to the tasks listed in the Study Guide (see example memo attached). Think of the evidence as completed (or attempted) homework problems. You may also explain how you would exhibit mastery of a skill; this is also considered evidence.

Details

When learning something new, it always helps to have an example, so here is how I would see each Module progressing.

1. Module 1 begins today. As an introduction to the module we go over the Study Guide for Module 1. I will help you to identify videos, chapters, homework problems, and handouts that will be helpful during Module 1. I will answer questions; remaining time will be spent on solving problems from Module 1. Since Module 1 is on prerequisite material, you may already be confident of several of the skills listed in Module 1.
2. Outside of class and following the Study Guide, you will, as needed, watch videos, read the book sections, and attempt homework problems associated with the learning objectives of Module 1. The Study Guide can act as a checklist for the module. As you watch a video, note down when some items on the Study Guide are mentioned. As you attempt homework problems, note down which of the numbered bits of knowledge or skills from the Study Guide are addressed by each homework problem. If you have difficulty with homework problems, bring your questions to the next class session.
3. Your work on homework problems is what I am calling “evidence.” Direct answers to knowledge objectives on the Study Guide are also “evidence.” When you have evidence that you can perform the skills (or have the knowledge) numbered on the Study Guide, the remaining task is to compile that evidence into your Study Guide memo. Your memo is a cover memo that transmits the evidence (your work on problems associated with the objectives). Thus, the memo is short and explains what is attached. For Module 2, for example, the cover memo could be similar to the one attached at the end of this handout. If you cannot do something that is on the Study Guide or if you did not have the time needed, please just say so in your memo. For Module 1, you may use work you performed in prerequisite classes as evidence for the Study Guide.
4. Once you have the memo and the attachments, upload this as a submission for your Study Guide Module submission. The submitted work will not be graded in detail; the course credit for the Study Guide project will be apportioned based on an estimate of your engagement with the Study Guide process. If you are giving it a serious try, you are meeting my expectations for the Study Guide project. You must indicate in your memo that you have addressed, or assert expertise in, all the Study Guide objectives.
5. The deadlines for the submission of each Study Guide memo/attachments is the Friday of a week in which there is an exam. If you cannot make that deadline, we will accept

your memo, *with a slight deduction* (10%), up until Friday of week 14. We would judge that timely submission is reflection of better engagement than consistently late submissions.

Only submit your own work; i.e. never submit someone else's work as your work. If you work collaboratively with others (that is, you do the problem but your coworkers help you occasionally and you occasionally help them) indicate this process in your memo. If you find the solution to a problem in the literature or scoop, that's like having a friend who is helping you out and that's allowed. You still need to produce your own solution and indicate that you got help from a solution in the literature. If you run out of time and will not be providing evidence, please indicate that in the Study Guide memo.

Memo

To: Dr. Faith Morrison
From: Jeanette Rankin
Subject: Module 2 Study Guide Submission
Date: 19 February 2021

Attached you will find my submission for the Module 2 Study Guide Evidence. The submission is my own work, in accordance with the Study Guide Project rules. I worked on some of these solutions (objectives 8-19) with my study partners Doris Miller and Kim-Ark Wong.

There are 25 module learning objectives in the Module 2 Study Guide. My submission is organized as follows:

- Knowledge—I have submitted my answers to learning objectives 1-9, 14-15, and 18
- Skills—To develop my skills with the microscopic momentum balance, I have chosen the steady laminar flow down an incline plane problem, which addresses learning objectives 10-13, 16-17, and 19-22.
- Skills—To develop my skills with fluid mechanics troubleshooting, I have submitted some discussion that addresses learning objectives 24 and 25.
- Developing—I do not understand torque calculations very well; I will pursue this during office hours if time allows.

If you have any questions about this submission, please contact me at jrankin@mtu.edu or 906-555-1212.