Course Syllabus

Jump to Today

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Course Information

Instructor: Jody Ryker

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Meeting Time: asynchronous

Office Hours: Friday 10:30-11:30am on Foothill Zoom and by appointment (https://fhda-edu.zoom.us/j/5816988970)

Prerequisite: CS 1A; MATH 48C or equivalent

Student Learning Outcomes

Students will apply number theory, combinatorics, discrete probability, graph theory, and recursion to solve various application problems.

Students will develop conceptual understanding of formal logic and various methods of arguments that can be used as the basis of a computer program. They will demonstrate and communicate this understanding by writing proofs involving number theory, set theory, combinatorics, and discrete probability.

Use formal logic and various methods of arguments to formally write proofs involving number theory, set theory, combinatorics, and discrete probability.

Students will develop fluency in deciphering and using the language of logic, proof, and set theory, constructing logical arguments and proofs that can then be used as the basis of a computer program.

Commitment to Equity

Mathematical institutions and instructors have historically been very inequitable. These institutions have often ignored mathematical contributions from marginalized groups, prevented equal participation from members of these groups, provided mathematical resources only to those fitting stereotypical descriptions of mathematicians, and created unsafe environments for people from marginalized groups that contributed to harassment and discrimination of these people. I have learned that many of the practices that were in place when I was a student were not equitable and I am constantly striving to un-learn these practices and do better. As a white person, I acknowledge

that I have been given many advantages by this system. However, we all will benefit from a more equitable learning environment, and I hope to discontinue inequitable traditions in my classroom. Here are some things I've implemented in this course:

- I have incorporated materials from mathematicians of varying identities in each weekly unit. You will not only learn from me, but from each other and many other mathematicians.
- Each of you will create materials to share with your classmates and contribute to our class canon. You are encouraged to use your own voice and communicate in the way that you prefer.
- Our class is a community and we will set collaborative norms to create a safe learning environment so that everyone can participate.
- You will be given a variety of communication tools so that you can express yourself and demonstrate learning in a variety of ways.
- You will be assessed in a variety of ways and by different people. You will receive feedback on your work from your classmates as well as from me. No one person's feedback is more important than anyone else's, mine included. Your own assessments of your work will also be used to determine your final grade.

If you have suggestions on how I can improve this course, please do not hesitate to let me know

Textbook/Course Materials

You do not need to buy any materials for this course. I do recommend that you have access to a discrete math textbook, however, you do not need to purchase any specific textbook. Throughout this course, I will suggest readings from the textbook *Discrete Mathematics: An Open Introduction* by Oscar Levin. You are welcome to use a different calculus textbook for your readings if another book works better for you, though you will need to identify the relevant sections. Most of the "C" activity questions come from this textbook, if you choose to do those exercises.

Additionally, much of the content in this course will be presented in the assignments and "A" activity solutions. It is essential that you study all of these materials in addition to the lectures and the readings, even if you have decided to complete the "C" track. I will often ask you to discover solutions to particular types of exercises, and after you've had a chance to work on exercises, then I will go over the solutions in lecture or in the posted solutions. I will introduce the main ideas of the week, the motivation and theory behind these ideas, and a few examples. After that, I will ask you to work on exercises and I will encourage you to ask me questions as you work through these assignments. If you are working on the "A" activities, expect to see exercises that look different than the examples I've shown. I will give you the tools you need to solve these exercises, but you will need to think about them a bit instead of just copying what I've shown. This is why I suggest that you plan on dropping in to office hours if you're choosing to do the "A" activities.

Assignments

Assignments will consist of weekly activities, weekly discussions, peer reviews, self-assessments, a practice final exam, an application project, and a final exam. Besides the application project and final

exam, most of these items will be graded for completeness. Make sure you understand what constitutes a completed assignment and get in touch with me before the due date if you are not sure.

Final Exam

The final exam is essentially an activity. It will consist of five multi-part questions and you will have one week to submit solutions. It will be released during week 5 of this course and is due exactly one week after it's released. After the due date, I will release solutions. You and one peer will both grade your exam according to my rubric. Your final exam score will be an average of these scores. I reserve the right to adjust any scores if there is evidence of an error, misinterpretation of the rubric, or of a score given in bad faith. Get in touch with me if you have any questions or concerns about this assignment. This assignment will not be accepted late for any reason.

Grading

Activities, peer reviews, self-assessments, and the practice final exam are graded for completion. In other words, if you follow the assignment instructions and satisfy each required item for that assignment, you will receive full credit provided that you've also submitted your work in a timely manner (by the due date or following the **late work** guidelines). Discussions are complete at an "A" level (you added something to the discussion that represents your own work or thoughts), "C" level (you participated in the discussion but didn't contribute a new thought), or incomplete (you didn't sufficiently address the prompt). Make sure you understand what each assignment is asking you to do, read all of the instructions, and view any sample work that has been provided before submitting your work. I encourage you to get in touch with me at least 48 hours before the assignment due date if you do not understand what is required of you for full credit. **In general, giving an answer to an exercise is not sufficient for credit.** You must include justification of your answer and show how you obtained the answer.

Each activity has an "A" level option and a "C" level option. The "A" activities contain challenging questions that will take time to work through. My expectation is that you will need to ask me questions as you work through the "A" activities. You may need to first practice some easier "C" questions or other exercises in your textbook before you feel ready to begin the "A" activities. **Plan on dropping into my weekly office hours if you intend on completing "A" activities.** "C" activities contain standard practice exercises and will require considerably less labor to complete. In order to receive an "A" in this course, you must complete most of the "A" assignments. In order to receive a "B" in this course, you must complete at least half of the "A" assignments and half of the "C" assignments.

The rest of your grade will be based off an average of your final exam (which will test conceptual understanding, quality of presentation, and demonstration of learning outcomes) and application project (which will test your ability to authentically apply concepts related to the learning outcomes) scores. These assignments will be graded for quality, not just completion.

"A" Grade

In order to receive an "A" in this course you must

- Complete all "A" Activities.
- Complete all weekly discussions ("Week n discussions")
- Complete all peer reviews and self-assessments.
- Complete the first and final drafts of the practice final exam. Your final draft must implement all feedback and address all questions you receive from me on your first draft.
- Complete the project and final exam.
- The average of the project and final exam must be at least 90%.

"B" Grade

In order to receive a "B" in this course you must

- Complete at least 2 "A" activities and 2 "C" activities
- Complete all but one weekly discussions ("Week n discussions")
- Complete all peer reviews and self-assessments.
- Complete the first and final drafts of the practice final exam. Your final draft must implement all feedback and address all questions you receive from me on your first draft.
- Complete the project and final exam.
- The average of the project and the final exam must be at least 80%.

"C" Grade

In order to receive a "C" in this course you must

- Complete all "C" Activities.
- Complete all but one weekly discussions ("Week n discussions")
- Complete all peer reviews and self-assessments.
- Complete the first and final drafts of the practice final exam. Your final draft must implement all feedback and address all questions you receive from me on your first draft.
- Complete the project and final exam.
- The average of the project and final exam must be at least 70%.

"D" and "F" Grades

If you satisfy all items for a "C" grade except the last item (the average of your project and final exam is less than 70%), then you will receive a "D."

If you have not satisfied the first six items for a "C" grade (the labor-based portion of the "C" grade), then you will receive an "F."

"+" and "-" Grades

I will give out "A+," "B+." and "C+" grades to students who go above and beyond the minimum criteria for each grade. For example, completing an extra 2 "A" activities in addition to satisfying the "B" and "C" grade criteria would result in a "B+" or "C+." Alternatively, having an average project/final exam score that is 5% above the minimum requirement would bump your grade up to a "+" grade. If there is something else you'd like to submit to earn a "+" grade, get in touch with me so we can discuss it.

I will give out "A-" and "B-" grades if all items for the "A"/"B" grade are satisfied except the last item (minimum required average of the project and final). For every 5% below the minimum required average, your grade may drop. Consider the following scenarios.

- All items for an "A" grade are satisfied except the last item. The average project/final score is 80%. The student will receive an "B+."
- All items for an "A" grade are satisfied except the last item. The average project/final score is 75%. The student will receive a "B."
- All items for an "A" grade are satisfied except the last item. The average project/final score is 72%. The student will receive a "B-"
- All items for an "B" grade are satisfied except the last item. The average project/final score is 77%. The student will receive a "B-."

Late Work

The due dates in this course are, for the most part, just guidelines to help you stay on track to successfully complete this course. With that being said, you cannot really learn the material if you try to do everything in the final week of this course. This also will stress out your graders! If you foresee any issues with submitting work on time, please get in touch with me during Week 1 to work out an alternative timeline. If something unexpected comes up during this quarter that is impacting your ability to complete an assignment, get in touch with me as soon as possible (before the due date) to discuss your options. I wish I could accept all work whenever you are able to complete it, but unfortunately we are limited by the end of the quarter and by what I/your peers can realistically grade before the end of the term. Submit late work using the Canvas Grade Portal if the assignment is still open. Otherwise, upload your submission to the appropriate folder in your Google Drive portfolio. Send me a Canvas message to let me know that you've uploaded your work. Use the following guide for late work:

- "A" Activities ending with ".1": accepted up to 1 week from the due date and prior to the end of the quarter
- "A" Activities ending with ".2": accepted up to 1 week from the due date provided that you can find a classmate who will agree to grade it late **AND** there is no evidence that my solutions were used as you wrote your solutions
- "A" Activities ending with ".3": accepted up to 1 week from the due date provided that there is no evidence that my solutions were used as you wrote your solutions
- Any "C" level activities: accepted up to 1 week from due date and prior to the end of the quarter
- Self-Assessments: accepted up to 1 week from due date and prior to the end of the quarter

- Peer Reviews: up to 1 week late (not including the final exam peer review)
- Application Project Topic: accepted up to 1 week from the due date
- final draft of the practice exam: accepted up to the end of the quarter

Discussion assignments will close on the given due date. However, you may make up one discussion assignment within one week of the original due date by making an appointment with me and discussing your thoughts on the material in the prompt with me. Alternatively, you may make up a missing discussion post by uploading your research paper to the google folder for future classes

The following items **cannot** be submitted late.

- Discussions
- First Draft of the Practice Final Exam
- Application Project discussion board posts and paper
- Final Exam

Note that summer quarter ends on August 5th. Note also that I do not update the Canvas Gradebook to reflect any late work/re-submissions submitted outside of the Canvas Grade Portal. It is up to you to keep track of these items using your portfolio.

Attendance

Complete and submit any of the Week 1 assignments, the Pre-Course Survey by the end of week 1 (Sunday, 7/1), or post on Pronto to avoid getting dropped from this course.

Academic Integrity

All written homework assignments, projects, quizzes, activities and tests must be completed by you. If you cannot solve a problem, please ask me for help. If you copy a solution from somewhere else, you will receive no credit for that assignment. Additionally, if you copy a solution from a source, you must use quotes around the solution and provide the source. If you plagiarize, have someone else complete your assignment, copy a solution, or do not properly cite your sources, you will either receive a "0" on the assignment or you may receive an "F" in this course. Note that if there is evidence of intentionally misrepresenting the total number of assignments completed in your portfolio or a "bad faith" review of a classmate's work (intentionally reporting it as complete/incomplete when it is clearly incomplete/complete), this is also a violation of academic dishonesty and may result in a "0" on the assignment or an "F" in this course. You may also be reported to the division dean and dean of students.

Read Foothill's policy on academic integrity (http://www.foothill.edu/services/honor.php)

Adds/Drops/Withdrawals

The last day to add this class is **Thursday, June 30th**. If I give you an add code, please use it as soon as possible in case there are any issues. I do not have the power to add students after this date

for any reason.

The last day to drop this class with a refund is **Wednesday, June 29th**. It is your responsibility to drop this class. Do not assume that I will drop you if you stop participating in class.

The last day to withdraw with a "W" is **Wednesday, July 27th.**

Communication Policy

Preferred Contact Method-Canvas Messenger

The best way to reach me is through Canvas messenger. I will do my best to respond to all messages within 24 hours Monday-Friday. If you message me on the weekend, expect to hear back from me Monday. If it's during the week and more than 24 hours have passed since you tried to get in touch, feel free to send me a follow-up message.

Please do not reply to your message if I haven't responded yet. I reply to messages in the order that they are received. If you reply to your message, it will appear as if you sent your message on the date you replied instead of the original date of your message, and this will delay my response.

Email

My email is **rykerjody@fhda.edu (mailto:rykerjody@fhda.edu)** . You may email me at any time, however, my email tends to get pretty busy during the quarter, so it is easier for me to not lose your message if you use Canvas messenger instead, if that is an option for you. I will do my best to respond to all emails within 24 hours Monday-Friday. If you email me on the weekend, you will hear back from me sometime on Monday.

Office Hours

I will be online on **Foothill Zoom every week on Friday 10:30-11:30pm (https://fhda-edu.zoom.us/j/5816988970)** . You don't need an appointment, you can simply log on then.

Appointments

Additionally, you may make an appointment to meet with me on Foothill Zoom. Every module will include an appointment page with available time slots. You may edit this page to sign-up for one of the available times. If no times listed work for you, please send me a Canvas message so we can figure something else out. **(https://ccctechconnect.zendesk.com/hc/en-us/articles/360009517813-Appointment-Booking)**

Anonymous Contact Form

Want to contact me anonymously? Use this Google Form. (https://docs.google.com/forms/d/1VIdhdciz5xQLy7cZA9bQMuLNAzakwOiBjU2YpK5SHuM/edit)

Institutional Resources

- You may visit the STEM center virtually. **Click here for more information on tutoring services. (https://foothill.edu/tutoring/)**
- To obtain disability-related accommodations, students must contact the Disability Resource Center (DRC) as early as possible in the quarter. For more information, send an email to: drc@fhda.edu
- **Click here for academic and personal counseling services. (https://foothill.edu/counseling/index.html)**
- EOPS offers financial assistance and counseling services, among other things. **Apply to EOPS here. (https://foothill.edu/eops/getting-started/)**
- **Click here if you need assistance with housing insecurity (https://foothill.edu/housing-insecurity/)**
- **Visit Foothill's Food Pantry page here (https://foothill.edu/foodpantry/)**
- If you are a veteran, **click here for access to resources for veterans (https://foothill.edu/veterans/)**

Technological Resources

Here are some additional tech resources.

- **Visit Foothill's Student Technology Hub Room (https://cccconfer.zoom.us/j/950296669)**
- **Participate in a Canvas orientation course**
- **Watch a Canvas introductory tutorial (https://foothill.edu/onlinelearning/canvas-info/canvas-student-tour-videos.html)**
- **Access Canvas guides (https://community.canvaslms.com/docs/DOC-10701)**
- **Access mobile Canvas app guides (https://community.canvaslms.com/docs/DOC-4048-mobile-guides-canvas-student)**
- **How do I use Zoom? (https://cccconfer.zoom.us/j/950296669)**

Course Summary:

Date	Details	Due
Tue Jul 5, 2022	**Week 0 Discussion: Netiquette (https://foothillcollege.instructure.com/courses/21110/assignments/647589)**	due by 11:59pm

Date	Details	Due
	Week 1 Discussion: Introductions (https://foothillcollege.instructure.com/courses/21110/assignments/647583)	due by 11:59pm
	End of Week 1	to do: 11:59pm
	Netiquette	to do: 11:59pm
	Activity 0.1: Set Up Your Class Portfolio (https://foothillcollege.instructure.com/courses/21110/assignments/647567)	due by 11:59pm
	Activity A1.1 (https://foothillcollege.instructure.com/courses/21110/assignments/647584)	due by 11:59pm
	Activity C1.1 (https://foothillcollege.instructure.com/courses/21110/assignments/647585)	due by 11:59pm
Mon Jul 11, 2022	Week 2 Discussion (https://foothillcollege.instructure.com/courses/21110/assignments/652003)	due by 11:59pm
	Activity 1.2 Part II: Your Math C.V. (https://foothillcollege.instructure.com/courses/21110/assignments/652029)	due by 11:59pm
	Activity A1.2 (https://foothillcollege.instructure.com/courses/21110/assignments/652004)	due by 11:59pm
Mon Jul 18, 2022	Week 3 Discussion (https://foothillcollege.instructure.com/courses/21110/assignments/652329)	due by 11:59pm
	Activity A1.3 (https://foothillcollege.instructure.com/courses/21110/assignments/652330)	due by 11:59pm
	Activity C1.2 (https://foothillcollege.instructure.com/courses/21110/assignments/652005)	due by 11:59pm
	Activity C1.3 (https://foothillcollege.instructure.com/courses/21110/assignments/652331)	due by 11:59pm
	Peer Review 1 (https://foothillcollege.instructure.com/courses/21110/assignments/652332)	due by 11:59pm

Date	Details	Due
	Topic (https://foothillcollege.instructure.com/courses/21110/assignments/647119)	due by 11:59pm
Mon Jul 25, 2022	Week 4 Discussion (https://foothillcollege.instructure.com/courses/21110/assignments/653891)	due by 11:59pm
	Practice Final Exam A/B-First Draft (https://foothillcollege.instructure.com/courses/21110/assignments/653895)	due by 11:59pm
	Practice Final Exam C - First Draft (https://foothillcollege.instructure.com/courses/21110/assignments/653896)	due by 11:59pm
	Self-Assessment 1 (https://foothillcollege.instructure.com/courses/21110/assignments/653894)	due by 11:59pm
Fri Jul 29, 2022	Activity A2.1 (https://foothillcollege.instructure.com/courses/21110/assignments/653892)	due by 11:59pm
	Activity C2.1 (https://foothillcollege.instructure.com/courses/21110/assignments/653893)	due by 11:59pm
	Practice Final Exam: Peer Review 2 (https://foothillcollege.instructure.com/courses/21110/assignments/654602)	due by 11:59pm
	Practice Final Exam: Self-Assessment 2 (https://foothillcollege.instructure.com/courses/21110/assignments/654605)	due by 11:59pm
Mon Aug 1, 2022	Infographic Presentation (https://foothillcollege.instructure.com/courses/21110/assignments/647117)	due by 11:59pm
	Week 5 Discussion (https://foothillcollege.instructure.com/courses/21110/assignments/653902)	due by 11:59pm
Wed Aug 3, 2022	Final Exam A/B (https://foothillcollege.instructure.com/courses/21110/assignments/656000)	due by 11:59pm
	Final Exam C (https://foothillcollege.instructure.com/courses/21110/assignments/656001)	due by 11:59pm

Date	Details	Due
Fri Aug 5, 2022	Reflection (https://foothillcollege.instructure.com/courses/21110/assignments/647116)	due by 11:59pm
	Self-Assessment 3: Final Grade (https://foothillcollege.instructure.com/courses/21110/assignments/656050)	due by 11:59pm
	Final Exam: Peer Review 3 (https://foothillcollege.instructure.com/courses/21110/assignments/656049)	due by 11:59pm
	Research Paper (https://foothillcollege.instructure.com/courses/21110/assignments/647118)	due by 11:59pm