

MATH 153 Calculus 3

Course Information and Syllabus

Sandi Xhumari

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1 Welcome Letter

Dear emerging mathematicians,

Welcome! I'm Sandi Xhumari, your instructor. My favorite pronouns are he/him/his. I hope you are ready to start learning some mathematics again together. I'm really excited to get to know you all, and I hope you feel like you belong in this class and we can form a healthy productive learning community. To achieve this goal, I would like to encourage you to feel free to ask questions to me and each other (this is in fact the topic of your first extra credit reflection). Even now I remember that one time during a graduate school mathematics class where I was not understanding much and I kept asking questions every five minutes during lecture (about half of the questions I asked had easy answers I could have probably figured out later myself, but they helped slow down the pace of the lecture nevertheless). I thought I was being annoying and disruptive, but after class the professor and several classmates surprisingly came up to me and thanked me for asking so many questions. It turned out that even though this was a graduate level mathematics class mostly full of mathematicians, I was not the only one not understanding. The professor also liked the easy engagement opportunities I provided for the class. One of the best things you can do while learning any topic is to frequently ask questions (especially questions directed to yourself), because that will make the information more memorable and connected to other things you already know. Just by asking questions, you can help yourself and others learn better, increase the sense of community and belonging in the class, as well as create a more fun and engaging learning environment for everyone. The key mantra here is that “**Questions are the answer!**” I share this and many other learning tips in my 15 minutes video [How to Learn Better](#). I believe that many students enter college not knowing how to learn effectively in a reasonable amount of time, and since there's no class per say on “How to Learn,” I hope you will use the abovementioned video to improve your learning practices throughout this class. I can't wait to see your growth this quarter!

Best wishes,

Sandi Xhumari, Ph.D.,
Pronouns: He/Him/His
Assistant Professor of Mathematics,
Bellevue College, WA

2 Purpose of Syllabus

The syllabus is meant to be a guide for your successful completion of this course. Students should frequently consult it to see the course expectations and specific details.

Skills/Knowledge. By consulting the syllabus students will

- know the purpose and learning objectives of the course.
- learn about the unique and flexible grading system I'm using.
- understand course structure and expectations.
- find out how their final grade for the course will be calculated.
- access instructor's information such as schedule and student hours (office hours).
- access campus resources that can help them succeed in this class, and perhaps in their academic careers.

3 Contact Information



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Figure 3.1 Instructor Profile Picture.

Here's a TENTATIVE schedule subject to change:

Activity	Day	Time	Place
Math 152A Group Work	Monday	9:30–10:20am	MS Teams Group Channel
Math 153A Group Work	Monday	10:30–11:20am	MS Teams Group Channel
Student Hours	Monday	Part 1: 1:30–2:00pm Part 2: 2:00–2:15pm	Part 1: MS Teams/Outlook Calendar Part 2: By Appointment Only
Math 152A Virtual Class	Tuesday	9:30–10:20am	MS Teams/Outlook Calendar
Math 153A Virtual Class	Tuesday	10:30–11:20am	MS Teams/Outlook Calendar
Student Hours	Tuesday	Part 1: 1:30–2:30pm Part 2: 2:30–3:15pm Part 2: 9:00–10:30pm	Part 1: MS Teams/Outlook Calendar Part 2: By Appointment Only
Math 152A Virtual Class	Wednesday	9:30–10:20am	MS Teams/Outlook Calendar
Math 153A Virtual Class	Wednesday	10:30–11:20am	MS Teams/Outlook Calendar
Student Hours	Wednesday	Part 1: 1:30–2:30pm Part 2: 2:30–3:15pm	Part 1: MS Teams/Outlook Calendar Part 2: By Appointment Only
Math 152 Individual Challenge or Study Groups	Thursday	9:30–10:30am	Gradescope
Math 153 Individual Challenge or Study Groups	Thursday	10:30–11:30am	Gradescope
Math 152 Group Challenge or Study Groups	Friday	9:30–10:30am	MS Teams Group Channel
Math 153 Group Challenge or Study Groups	Friday	10:30–11:30am	MS Teams Group Channel

Come visit me with Microsoft Teams (join me in a videocall) during virtual student hours (office hours) listed above for help with the material, help with homework, questions about your grade, just to chat about the class, or anything else that you think can help you succeed in the class. If those times are not workable for you, please feel comfortable contacting me to make some other arrangements. I will strive to reply to you quickly by Microsoft Teams chat (preferred), or email within 24 hours (except if you message me about challenge Revisions, please allow 3 days for a response). If you don't hear back from me after 24 hours or 3 days for a challenge revision, something is wrong (I may have not seen your message by mistake, or I didn't get it, or you didn't send it, etc.), so please contact me again through email.

Student hours (office hours) will be split in two parts:

1. Part 1 at the start will be open to any student who just wants to drop in for a quick question related to the content, or wants to listen to other students' questions and my responses. In this case, no appointment is needed. Just join the office hours meeting from your MS Teams or Outlook calendar anytime. In order to efficiently address your questions, please make sure to attempt them yourself first and have the notes available for me to see at the start of our meeting even if you didn't get too far (I recommend using OneNote Notebook linked to this class). This way it's much easier for me to spot the issue(s), and then have time at the end to reflect about the whole process. Note that I'm not allowed to recorded student hours since they're open to students from different classes, and it would be a violation of FERPA.

2. Part 2 at the end will be reserved for individual 15 minutes appointments only, which you can book using the following link: [Schedule Student Hours](#). These one-on-one appointments are reserved for sensitive topic you would like to discuss such as your challenge or class performance. Note that we only got 15 minutes for this appointment, and I might have another appointment right after it, so it's best to perhaps also send me an email with your concerns or book another follow-up appointment if needed.

4 Course Information

Inspirational Quotes. *"Mathematics is a way of looking at your world. Take charge of it - make it yours. Understand how you see things, and see how you understand things. Mathematics can say something about you."* - David W. Henderson

"Whether someone solves a mathematics question quickly or slowly isn't important. What's important is the meaning you bring to the mathematics that no one else will. What's important is the pleasure you get from doing mathematics. I wouldn't ever want you to deprive yourself of that." - Sandi Xhumari's adaptation of a quote in *"Siblings without Rivalry"* by Adele Faber, and Elaine Mazlish.

Purpose. I want you to remember having a meaningful learning experience, and have a better appreciation for mathematics and its power in our lives keeping in mind the above two quotes. Recent brain research suggests that the most effective way to learn something is to first play and struggle with it. Throughout the course you are expected to challenge yourself enough to fail at solving some questions. The purpose is for you to start placing more value on the process and explanation rather than the answer as well as reinforce the fact that it's okay to fail as long as it is used productively. At times we will discuss a particularly good error that we can learn from, or that can inspire a different solution. Throughout this course my goal is to help you improve your self-learning, critical thinking, problem solving, communication, organization and work ethics abilities through mathematics. These are crucial skills most successful people have and which your future employer will most likely want regardless if your profession is directly related to mathematics or not. My goal for you is that when you think back to this class after 20 years, you feel like you have become better in some way due to it.

Description. Emphasizes the study of infinite sequences and series including power series. Topics include plane analytic geometry, graphing in polar coordinates, and an introduction to vectors. Fulfills the quantitative or symbolic reasoning course requirement at BC. Prerequisite: Placement by assessment or MATH 152 or higher, with a C or better.

Outcomes. Students completing Math 153 should be able to

- Calculate and apply derivatives and integrals in the contexts of polar coordinates and parametric equations coordinates.
- Explain the meaning of the convergence and divergence of sequences and series.
- Determine the convergence or divergence of numerical series by applying a variety of convergence tests.
- Determine power series for common functions.
- Apply vector operations in two and three dimensions.

Learning Objectives. See Canvas or Microsoft Teams files for a pdf with the list of specific learning objectives, together with corresponding criteria and questions for each. There's a total of 16 learning objectives, which you will be working towards throughout the course. You will be completing these learning objectives both individually, and in groups. Your grade will heavily depend on your completion of these learning objectives.

How Outcomes Will be Met. All the above mentioned learning objective and course outcomes will be met through: Discussion boards, Online Homework, Group Activities, Challenges (my version of tests) and a Final Challenge. See Grades for a breakdown of your grade.

5 Course Structure

Before Monday. Plan to spend at least 1 hour on your own before the group work on Monday to check out the Pre-Class Activities listed on that week's module in Canvas. This definitely involves working on the In-Class Activity assignment, and annotating comments/questions on it within Perusall (see Learning Engagement for more info on it). Often it may also involve watching a short video, or reading a quick article. An announcement in MS Team's General channel will give special directions if necessary. Play with the InClassActivity before the assignment is due. At this time, you're not expected to be able to solve any of the questions, but just to explore and make as much progress as possible on them with your own creative thoughts and ideas. You will feel like lost in the jungle, but this is what doing mathematics really is like. If this feels too uncomfortable for you, then check out the recommendations below on how to adjust your routine under "Motivation and Options for learning this way."

Monday-Tuesday-Wednesday Work on the weekly module in Canvas including the InClassActivity, Online Homework, Reading textbook and watching videos while annotating them through Perusall. I recommend accessing them through the home page in Canvas in the order displayed, because the Canvas calendar does not list a lot of tasks.

Monday Group Work Meeting. Every two weeks all students will be assigned to a private channel named "Week X Small Group Y" to work together in groups. At the start of class time on Monday, either please start a meeting yourself, or join one started by your classmates there. I will assign a group leader and reporter each week who will direct the meeting and report to Sandi in the end-of-week Learning Engagement Quiz. Follow the directions in MS Team's General channel announcement for your discussions. If someone has a stylus, please consider sharing your screen and acting as a scribe for the group to solve questions together in the collaboration space of our Class Notebook (OneNote) within MS Teams. Make sure to go through as many comments/questions within the PerusAll In-Class Activity assignment when you feel stuck. You only got about 30 minutes to work on it, so try to be as efficient as possible. It may happen that none of your group members shows up, and in that case, you should either join or start a meeting within one of the "Additional Group #" channels, so you can work with other students who also may be facing the same situation. Sandi, your instructor, will call you for 20 minutes in the general channel for part of this meeting, where he will give you the chance to share your progress, and offer help as needed. The 20 minute meeting will be recorded, and be available to view within that meeting's chat in the general channel.

Virtual Class Meeting. We will meet as a whole class twice per week for an interactive class experience (Tuesdays and Wednesdays). While I don't mind being a "sage on the stage," educational research points to more student learning when the instructor acts more as a "guide on the side," which will be the primary way I will operate. What that means is that I will call on various students to share what you and your group discussed about a specific In-Class Activity question during the group work meeting earlier in the week. I also like to ask questions you can vote on, and then discuss together their answers, as a way to interactively reinforce the material. For the success of these sessions, it's paramount that you prepare ahead on your own.

Study Group Meetings. These are optional unstructured meetings you can use as you see fit to work with other classmates within different channels: "Learning Objectives," (if you want to work on questions related to different learning objectives) "In-Class Activities," (if you want to work on the weekly In-Class Activity) "Online Homework," (if you want to work on online homework questions) or "Quiet Study Group" (if you prefer to work on your own interacting strictly through chat). Note that Sandi, the instructor, will generally not be participating in these meetings to give you the freedom to take charge of your own learning and socialize with each other. If these groups get too big, say 8-10 students, then you can split off into groups of 4-5 students. I will assign Study Group leaders and reporters for every two weeks. These meetings will be on Thursdays and Fridays during class time, but feel free to organize your own study group meetings too.

Thursday Individual Challenge day. Each challenge (my version of a test/quiz) will be released on Gradescope (check Canvas challenge description in Canvas for more info on this platform), which can be accessed directly from a menu item within our Canvas course. You will get an email before the Thursday of the Practice Challenge 1 to enroll into Gradescope, and then you can always access it through Canvas. Each individual challenge will be split into two parts:

1. Part 1 will be timed during the regular class time: you have 50 minutes to solve 4 questions on your own, and then an additional 10 minutes to scan your work, and upload it to Gradescope. That's a total of 60 minutes. The extended time can only be used with a DRC accommodation, or with the approval of the instructor in certain cases (please contact me ASAP if necessary). Running over the time limit will reduce your time in future challenges, or may result in your challenge score not being recorded at all. If you feel like you did not do well on a challenge, you can decide to not submit it and get extra time and question attempts in future challenges as described in the "Make-up Policy" under "Miscellaneous Items" section.
2. Part 2 will be take-home: you will submit only one of the challenge questions you didn't answer during the timed portion (part 1) sometime between 2:30-5:30pm in Gradescope.

Friday Group Challenge day. Sometime between 5:30pm-9:30pm on Thursday after the individual challenge part 2, please post to your group channel for that week your best attempt at solving each of the challenge questions (even questions you did not submit in your individual submission). This may be the same as your individual submission earlier in the day, or a better version you came up during the time after the challenge. The reason for submitting it by 9:30pm on Thursday is that it will give your group-mates time to review your solution, and for you time to review other group members' solutions. Before the group meeting on Friday, you should review all your other group mates solutions to each question posted in your small group channel, and try to figure out the best solutions. When the group meeting starts at class time, you should discuss each solution, including issues with the incorrect solutions, and as a group come to the agreement of the correct solution for each question. This may be the exact same as one of your teammates posted, a modification of it, or totally different. All group members need to agree on the group solutions, which one student from the group (the leader or reporter generally) will put together and submit to Gradescope as your Group Challenge solution by Friday midnight. You can continue to discuss after class asynchronously through the chat of your small group channel if you didn't come to an agreement on a certain question, but the final solution needs to be submitted by Friday midnight.

With that said, here's a few tips/recommendations:

- Watch this video I made on [How to learn better: HEAR and BE FASTER](#). Here's some more videos made by other mathematics faculty across the US giving other really wonderful tips that may resonate with you.
- To enhance your creativity, problem solving abilities, and give your brain the necessary time to process new information, start working at least a couple of days before Monday on the Pre-Class activities for the upcoming week. Play with the InClassActivity questions for at least 30 minutes. At this time, you're not expected to be able to solve any of the questions, but just to explore and make as much progress as possible on them with your own creative thoughts and ideas. You will feel like lost in the jungle, but this is what doing mathematics really is like. If stuck for more than 30 minutes on a question, then skip it and ask for help, but do try to work on it for at least 15 minutes. Resist the temptation to look up resources such as the online homework, textbook, or the Internet, unless you have a technical concern on the meaning behind a question, or terminology. During those couple of days try to periodically come back to work on these questions, or at the very least keep thinking about a few of those questions.
- Record any progress, and write comments/questions/solutions on the In-Class Activity Perusal assignment so that others may also benefit from it. Take a look at other student annotations as well to get some ideas if stuck on a question.
- Check out the In-Class Activity and challenge solutions, and try to compare with your own progress and learn from them. Make sure again to attempt to solve it yourself first.
- Imagine you will have to teach the material to a friend or family member while you're studying. Do the weekly reading/video-watching annotations, activities, and the online homework before they are due.
- Actively participate, contribute to the discussions, ask meaningful questions, make comments, attempt to solve Learning Objective sample questions, and share ideas with others in the weekly whole class discussion channel. Sometimes wrong solutions or ideas may lead to new and better solutions, and at the very least they lead to a better understanding of the subject. Remember: you're all here to learn.
- Check Microsoft Teams, and email frequently (at least once per day). I will frequently post important announcements on Microsoft Teams as my main communication channel with the class.
- Learn effectively by setting aside 10-15 hours per week to practice and study just for this class, not including challenges. If you want to effectively lower this timeframe, check out my video on the first item above for some tips.
- Read daily the whole class discussion channel on MS Teams for that week, even if you don't reply to anything.
- Do the online homework while making sure you understand each step, and are not simply following directions from a solved example. Start by trying your best to solve each question yourself first, and then go to look for help either in the online video, class notes, textbook, or ask in the weekly discussion board.
- Be persistent. Math isn't about knowing an answer immediately. The journey to a solution is sometimes the most valuable part, and may reveal important aspects of the most effective way you learn concepts. If stuck for more than 30 minutes on a question, then skip it and ask for help (I know this is very hard for many who were made to believe that giving up and asking for help is a sign of weakness instead of a way to increase effectiveness of what you're learning), but do try to work on it for at least 15 minutes (if you find yourself starting to get frustrated after 5 minutes, it's ok to get help too, but try to push this boundary further as much as you can).
- Evaluate your understanding frequently and honestly. Pretend to, or really teach the material to a classmate, and go through the reasons for the steps you're taking to solve various questions. Ask yourself why certain formulas or steps work? When would they not work, and what to do in such cases?
- Ask questions and actively search for help. When you are confused, don't understand, or need more information, ask first your classmates through posting in the weekly discussion board. I will try to hold back to give other classmates a chance to respond unless it's time sensitive information.
- It is helpful to go to the Math Lab (Join the MS Team Math Lab team), get one-on-one tutoring from the ASC (Join the MS Team ASC team), or form a study group with your classmates.

Motivation and Options for learning this way. Considering all the above, this class is a unique mix of inquiry-based learning, and flipped classroom. Being asked to work on your own may be quite intimidating at first, and progress may be slow, but this is the heart of this class. Recent research shows that it's precisely this play and struggle time that will make you better thinkers, give you a deeper understanding of the concepts you're learning, and will be the main stepping stone towards the better understanding of the textbook, and learning objectives. However, the adjustments in your learning routine may be tough at first, so I do suggest that you start by reading/annotating ahead in the textbook and try the online homework coming up before tackling the InClassActivity at first. As you grow more comfortable in publicly (in front of your classmates online) playing and struggling in math, you should try to gradually stop doing the reading and online homework before freely exploring and wrestling with the InClass Activity questions, similar to what you would do in an inquiry-based learning class. You may feel that this may be an inefficient use of your time, but in fact you're working on your creativity, and problem solving abilities this way, which will speed up future learning and recuperate the "lost time."

6 Technology Requirements and Recommendations

For this class you are required to have:

- A computer or other electronic device with internet connection that is able to access MS Teams, Canvas, and their corresponding apps or assignments.
- Either a scanner, smartphone with an app that can do scanning (I use "Genius Scan" on my iPhone for instance, which is free), or a stylus and electronic device with touchscreen capability so that you can solve challenge questions, and submit them as required.

It is highly recommended but not required to have:

- A webcam, so you can share gestures or notes while explaining your ideas either during whole class instruction, group work, or student hours.
- A stylus and electronic device with touchscreen capability so that you can share your screen and work with others during group work. You can use this also to directly work on Challenge questions on your computer without having to worry about print/scan.
- A graphing calculator, if you prefer it instead of Desmos or other online graphing tools.

7 Textbook

We will be using Chapters 9–11 of Contemporary Calculus by Dale Hoffman. The textbook is already incorporated as reading/annotating assignments for each section through PerusAll.

You can also access the textbook online here: [Contemporary Calculus](#)

If you wish to purchase a printed copy of the textbook, you can do so by following the directions at the above textbook website. Note that some of the pages may not fully match the versions assigned for reading/annotating through PerusAll (the ones in PerusAll are the latest updated versions). To earn learning engagement points in PerusAll however, you need to add annotations into PerusAll after doing the reading in the printed copy (see learning engagement section for more info on how to earn learning engagement points).

8 Grades

Unlike most courses, your final base grade (the letter A,B,C,D, or F without plus/minus) will be assigned based on the row(level) of the table below you qualify for. However, I reserve the right to raise your grade if you are an active, thoughtful participant in class and there is evidence you are working consistently and with care. Note that Canvas will not be able to tell you your "current grade," since you will be given many chances to complete learning objectives in the course.

Grade	Completed Individual Learning Objectives	Completed Group Learning Objectives	Learning Engagement	Online Homework
A	15 (including 6 CORE)	16	80	90%
B	13	14	60	80%
C	11	12	40	70%
D	5	8	10	50%

Note that if you complete student evaluations at the end of the course, the numbers in the two columns for "Completed Individual Learning Objectives" and "Completed Group Learning Objectives" will decrease by 2 (for an A, you still need to complete all 6 designated CORE objectives, as in the Learning Objectives and sample questions pdf). So, for instance, to get an A, you need to complete 13 Individual Learning Objectives, and 14 Group Learning Objectives. A grade of F is given if none of the rows has been fully completed. Both the "Completed Individual Learning Objectives" and "Completed Group Learning Objectives" come from completing the same list of 16 Learning Objectives posted in Canvas under "Important Course Content." You can complete learning objectives by taking challenges (see challenge section for more info).

Plus/minus grades. You can earn "plus" and "minus" grades as follows:

- Plus: Meet all the requirements for a base grade and also the requirements for Individual or Group Learning Objectives for the next level up; and get above 80%, 70%, 50% on the final challenge for B+, C+, D+ respectively.
- Minus: Meet all the requirements for a base grade except for one, and that one is not the Completed Individual Learning Objectives and is no more than one grade level lower; or get below 70%, 60%, 50%, 30% on the final challenge for A-, B-, C-, D- respectively.

Let's run through a few examples so you can understand better the grading system. Suppose a student in the class ends up with the following numbers at the end of the quarter. What grade would they get?

- Completed Individual Learning Objectives: 10, Completed Group Learning Objectives: 12, Learning Engagement: 60, Online Homework: 90%, Final Part 1: 50%. Therefore, if they didn't do the student evaluations, their course grade is a D+; if they did the student evaluations, their course grade is a C.
- Completed Individual Learning Objectives: 14, Completed Group Learning Objectives: 14, Learning Engagement: 70, Online Homework: 90%, Final Part 1: 70%. Therefore, if they didn't do the student evaluations, their course grade is a B; if they did the student evaluations, their course grade is an A-.
- Completed Individual Learning Objectives: 6, Completed Group Learning Objectives: 16, Learning Engagement: 60, Online Homework: 90%, Final Part 1: 90%. Therefore, regardless if they did or didn't do the student evaluations, their course grade is a D+.

One very important aspect of this grading system is that once you have met the requirements for a grade, your grade cannot go down (except for issues like cheating, so don't do that). You should decide at the start of the course which grade you want to work toward and then plan your studying accordingly.

The College Grading Policy for the meaning of the letter grades A-F is explained in the current Course Catalog and can also be found at this link: [Grading Policy](#).

9 Challenges

There will be 5 cumulative challenges and 1 final challenge administered almost weekly after week 1 of the course. These are my version of tests/quizzes throughout the course, but also not the same in many aspects. Challenges are the main way I will assess your learning in the class, and provide you with feedback so you can gradually learn and improve, so it's very important you give them high priority. Individual Challenges will contribute to your Completed Individual Learning Objectives, whereas group challenges will contribute to your Completed Group Learning Objectives.

Each challenge will consist of questions testing new learning objectives (LOs), as well as a chance to complete learning objectives of previous challenges as follows:

- Challenge 1 LO: 1-5
- Challenge 2 LO: 1-8
- Challenge 3 LO: 1-11
- Challenge 4 LO: 6-14
- Challenge 5 LO: 9-16
- Final Challenge LO: 1-16

On each learning objective you will be graded with the following grading scale:

- *Complete*, which means understanding of the concepts is evident through correct work and clear, audience-appropriate explanations (even on true/false or multiple-choice questions). It is clear that the solution fulfills all relevant criteria stated under each learning objective. Some revision or expansion may be needed, but no significant gaps or errors are present. This will show up as 1 point on Gradescope.
- *Revise*, which means the solution is almost complete, except perhaps a few typos/errors as mentioned in my feedback on Gradescope. Use my feedback directions as well as the answer key to fill in the gaps. This will show up as 0.01 points on Gradescope, which will then be changed to 1 point (Complete) upon successful revision.
- *Not Yet*, which means that either not enough information is present to determine whether there is understanding of the learning objective, or the work contains too many significant errors or omissions. In particular, the solution does not fulfill certain parts of the criteria stated under the corresponding learning objective that are related to the given question. This will show up as 0 points on Gradescope.

An example of a score for a challenge could be 1.02 points, which means that the student completed one learning objective, and has the opportunity to revise two others. This is really good progress, as it means the student is eventually able to earn 3 completes on that challenge. Completing an average of about 2 individual LOs per challenge and 3 on the final is enough for you to fulfill perhaps the hardest requirements for an overall class grade of A.

Unlike most courses, there are no points, percentages, or partial credit for learning objective questions within challenges. If you get a "Complete" on a learning objective, you will not have to worry about doing questions related to that learning objective in future challenges, except perhaps on the final challenge. If you receive a grade of "Revise," you are given the chance to fix any mistakes. You need to check the comment box to see if I asked you to come to student hours, or send me an email to iron out the mistakes you made and possibly answer follow-up questions. If you get a "Not Yet," carefully review the feedback and answer key so that you can get a "Complete" on that learning objective in future challenges, or the final challenge. Based on the above listed challenges and final, you will have 4 chances for LO 1-11, 3 chances for LO 12-14, and 2 chances for LO 15-16. In this way, you are not penalized for making mistakes as long as you eventually fully understand each topic by the end of the quarter.

Students can only "Complete" learning objectives through challenges, or if they are asked by the instructor within the feedback comments of that question in Gradescope to send an email with revisions and possibly follow-up questions, come to student hours for a one-on-one "clarification/convince me" meeting, or simply provide some further info. During the meeting in student hours, students will be asked to explain what they did wrong, their thought process that lead to their answer, and a follow-up question on that Learning Objective.

All challenges are open book/resources. You are especially encouraged to use Desmos.com, and Wolfram Alpha, so it's helpful to get to know these technology tools throughout the course. The only restriction is to take the individual challenges yourself, and not collaborate with other people. This means that you may not ask someone else to take your challenge, nor discuss the challenge questions with other people, online or in-person. In particular, the use of "study" sites such as Chegg.com, study.com, Coursehero, or question and answer sites like Stack Exchange or Quora, to obtain help on challenges is forbidden. You may however choose to watch a video online on that topic, or read your notes, or textbook sections, but please be warned that the time constraint is there to ensure that you do prepare ahead enough to be able to answer the questions on your own with minimal help such as looking up a formula for instance. Not adhering to these restrictions will be considered cheating, may result in failing the course, and will be reported to the college. The only exception is the group challenge after the individual one, where you're required to collaborate with your group members, but you still cannot collaborate with other people outside your group. This means in particular that you cannot share your challenge solution with anyone else outside of your small group until after Friday midnight.

You will be required to strictly answer only 5 questions on the individual challenges, and take part 1 of the individual challenge during the fixed class time (see Canvas for the exact dates) for 60 minutes: 50 minutes to answer questions, and 10 minutes for dealing with technology. Remember that you may choose to answer one of the 5 questions in the take home part 2 if you wish, which will be due 2:30-5:30pm. Students with a DRC accommodation may use the additional extra time to submit their individual challenge as appropriate with their accommodation. Submitting a challenge late may result in it not being graded at all. You will upload your challenge to Gradescope. More info on the submission process is provided within the challenge assignments on Canvas, but we will do a practice challenge on it to test it out too, so don't stress about this.

Group challenges will consist of the same exact questions as the individual challenge the day before, and will be generally due on the next day at midnight (except for holidays), but students are required to contribute to the solution uploaded by the group to Gradescope, as otherwise they will not earn a complete towards the "Completed Group Learning objectives" of their grade (for directions on uploading group solutions on Gradescope, see the group challenge assignment on Canvas). Groups need to submit an answer for any not completed group learning objective by one of the students in the group. This means that for group challenges, unlike individual challenges, you may submit answers to more than just 5 questions.

The Final Challenge is assessed individually during final's week as in the Final Exam Schedule. There's no Final Group Challenge, so make sure that you got all your group LOs completed by Challenge 5. It will have 16 questions, one for each learning objective, and will consist of two parts (one hour each). For the first part (first hour), I will pick 5 questions (20 points each) out of the 16 LOs, which I will then grade as a traditional final, awarding partial credit. I will also assign "Complete/Not Yet" grades for these questions in case you need these objectives to count towards your Individual LOs (no revise possible). You will then have to submit these 5 questions within the end of the first hour on Gradescope. This first part will be also effecting if you get a plus or minus added to your base grade as discussed in the Grades section. The second part (second hour) consists in trying to complete any learning objectives you have yet to complete (if any) within the remaining time (out of the 11 remaining LOs). If you have already completed all individual LOs by then, you can simply skip part 2.

Lastly, I made this video during summer quarter explaining my motivation for switching to such a grading system, and explaining how it works. I think this may help you understand where I'm coming from better, even though some details such as the Learning Engagement numbers in that table are different, and none of our challenges this quarter is take home (instead on each challenge, you have the option of one question take-home in part 2, which was not the case during summer quarter).

10 FAQ

What are some learning resources options? Class activities such as group meetings, virtual class meetings (if synchronous class), office hours, and study groups meetings; previous quarter solutions to Challenges and In-Class Activities; the list of Learning Objectives with criteria and sample questions under "Important Course Content" in Canvas; annotating the textbook and lecture videos; and an itemized list of "Video Resources" under "Important Course Content," where you can find full lecture videos on the topics we're covering by various instructors. I hope that helps!

How does Perusall assignments annotation grading work? Check out the “Perusall Grading” page under “Important Course Content” module on Canvas. When you write an annotation on Perusall, please do not just copy/paste from websites, as that will be considered plagiarism. Your posts should reflect your own thoughts from the textbook/video. If you want to quote something from another source, that should not be your entire post, and you need to provide a link to the webpage you took it from.

I’m having a hard time to complete learning objectives in challenges. What can I do? Take a careful look at the feedback on that objective in the challenges you tried to earn it in combination with the answer key, and try to identify what went wrong. If you’re struggling with a question or concept (try on your own for at least 15 min but no more than 30 min) even after going through the challenge solution and learning resources options described in a previous question, there’s several steps you can take:

Your first resource should be the other students in the class. Post that question under the Weekly Whole Class Discussion channel on MS Teams (“Week # Whole Class Discussion”). You and other responding to your post will be able to earn Learning Engagement points if you explain your thoughts/attempt towards solving it, regardless if correct or not. I will try to not get involved here unless you specifically call on me.

If you need an answer quickly, the Math Lab or Academic Success Center may be easy solutions. You can also message me in MS Teams (preferred), email me, or sign up for Student Hours to talk about it. If you do not receive an email back from me within 24 hours, please resend it (I may have accidentally deleted it, or skipped it, or something else).

Why is there no partial credit? The driving reason is that it is better to fully understand 80% of the course content than to complete all learning objectives with 80% accuracy for instance. A list of learning objectives that you complete is a list of things you can leave this course saying “I know how to do that!” Your focus during challenges is in completing learning objectives fully rather than trying to get as much partial credit on as many questions. I want you to clearly know exactly what learning objectives you have fully learned, and which ones you may still need to work on some more. In fact, in future classes, it is assumed that you fully know these learning objectives, and not just have a partial understanding. In the real world, these would correspond to tasks/projects that your employer would give you. If you partially complete a task, your employer will likely ask you to redo it, or amend it somehow (or if really bad, they might even hire someone else entirely).

Let me illustrate this with a story. When I was in middle school, I remember struggling with understanding the order of operations in arithmetic expressions, especially when it involved fractions. I could solve the examples in the homework and textbook with little to no errors since I had noticed the solution patterns, even though I did not know why those patterns held. Nevertheless I was one of the best students in the class, consistently getting high grades so even though I deeply knew that I had a shaky understanding, my grades told a different story and gave me some empty confidence. I was one of two students in my grade who qualified to go the Mathematics Olimpiad competition to represent my school (might have been 6th or 7th grade). This is a challenging math competition test involving non-traditional questions which are hard to solve using standard algorithms and usually require some creativity on top of a perfect understanding of the concepts involved. I remember struggling at a question involving fractions, and realizing at that moment that I did not have a full understanding of the order of operations when fractions were involved. Needless to say, I did not solve that question correctly, and after the test I was upset at myself and my school education for not fully learning it properly. I resolved to fill this gap, which turned out to be quite useful when we started working with equations involving variables, and later proving trig identities.

Why is it so hard to earn a complete on a learning objective? First, it is possible I made a grading error, so make sure you check my feedback, as well as the solution provided in the Class Notebook OneNote in MS Teams. Second, I consider failing to earn a complete on a learning objective, as part of your learning journey. When I grade, I ask myself "Will the student benefit from studying this learning objective again?" It may take more time to fully learn certain learning objectives, and due to having multiple tries that’s ok, as long as you persist and learn it eventually. Third, you may be facing special circumstances that are blocking your learning, so consider contacting the instructor through MS Teams chat (preferred), email, or come to student hours. We can go over your study strategies to refine them.

Why this different type of assessment method? There’s many reasons, but perhaps the top one for me is Equity/Re-Humanization. Due to COVID-19 and BLM, in the Summer of 2020 I participated in many conferences and workshops to deeply think and improve my teaching. Many students coming to BC are international students, first generation college students, part of some underrepresented group, or face certain difficult life circumstance and may initially (or sometimes during the course) get a bad grade. Getting a bad grade on one exam and/or some quizzes in a traditional setting usually heavily impacts the final grade negatively, and doesn’t take into consideration the fact that a student may have eventually learned everything by the end of the quarter, even though they may not have taken the main route. Not having partial credit may seem scary, but it lessens the stress about your performance on any particular day. Your grade is determined by what you are able to accomplish on your best days, not just how you perform on a particular day.

Another reason dear to me is “Growth mindedness.” With a traditional grading system of “one and done,” the implicit message is that failure is undesirable and incurs penalties, whereas with this system, failure is an opportunity to improve understanding, since you’re given multiple attempts with complete forgiveness.

With a traditional points based system, students are focused on accumulating points, and understand everything superficially, just enough to get on average the points needed. By banning partial credit, we force students to pick a few learning objectives to understand in great detail instead. Even if students spend no time studying a particular learning objective, we contend that the experience of pursuing deep understanding on the other learning objectives leaves them in a stronger position to engage deeply with the troublesome topic when it is needed in the future. Moreover, depth of understanding is critical to one's ability to apply existing mathematical knowledge in novel domains.

Lastly, I made this video during summer quarter explaining my motivation for switching to such a grading system, and explaining how it works. I think this may help you understand where I'm coming from better, even though some details such as the Learning Engagement numbers in that table are different, and none of our challenges this quarter is take home (instead on each challenge, you have the option of one question take-home in part 2, which was not the case during summer quarter).

What happens if I didn't complete any learning objectives on Challenge 1? My hope is that even this students will be able to end up with a good number of complete learning objectives for the quarter, and have a good chance to still get an A in the course. If they are progressing on most learning objectives, than they just need to learn from their mistakes (check feedback in Gradescope and solution), and demonstrate that in future challenges by earning a complete.

How can I tell how I'm doing in the course? You have 6 challenges to complete learning objectives including the final. Completing 2 objectives on average will get you to 12 completed learning objectives. Completing additionally 1 more LO, will get you an A provided you do the student evaluations. With that in mind, you should figure out how many LOs you have already completed, and how many are still needed for your desired grade in the class. Take the number needed and divide it by the number of challenges left. If the result is 2 or less, then you're on the right track.

How will grading feedback work in Gradescope? When you click on a challenge on Gradescope, your submission pdf will show up, and you can click on each LO# question on the right menu to expand the feedback on that Learning Objective. If you got a "Complete," then you will see a single check-mark next to it, and get a point. If you got "Revise" or "Not Yet", the items with a check-mark next to them indicate all the things that your solution shows you can do, whereas the ones unchecked are the ones your solution is missing and you need to work on. There's generally going to also be marks and comments within your work (if you see no comments and "not yet" checked, I probably made a mistake and didn't grade your submission so please contact me ASAP). Pay special attention to my comments on right panel if you got a progressing, as there may be an opportunity to revise your work and earn a complete. Check out the solution posted on the Class Notebook OneNote, and compare it with your solution to see the differences. Feel free to contact me for clarification. Here's an example of grading a student who got "Revise," where you can see that "I can correctly apply substitution" is the only unchecked item, and I circled the bounds of integration on the solution, indicating that's the issue.

7. Use u-substitution to answer this question. Clearly state u and du , and carry out the substitution. If $f(x)$ and all its derivatives are continuously differentiable functions, $\int_1^3 \frac{f'(\ln(x))}{x} dx$ is

(a) $f(\ln(x)) + C$
 (b) $f(1/x)$
 (c) $f''(\ln(x))$
 (d) none of the above

LO7 0 / 1 pt

- + 1 pt Complete
- + 0 pts Progressing
- + 0 pts Not yet
- + 0 pts I can figure out u.
- + 0 pts I can find du.
- + 0 pts I can correctly apply substitution.
- + 0 pts I can solve the integral in terms of u.
- + 0 pts I can go back to x-world.
- + 0 pts I remember to plug in the bounds.

Figure 10.1 Student graded example on Gradescope.

11 Learning Engagement

Learning Engagement will be perhaps the most important part of this class. At the end of each week you need to take a Learning Engagement Quiz in Canvas to reflect and grade yourself on the work you did that week out of 10 points. I will take off one point every day it's late. This portion of the grade will be determined by the student in the spirit of ungrading. You need to give yourself 0-5 points for your individual/personal learning throughout the week, as well as another 0-5 points for your contribution to other classmates' learning. Each week you can learn in various ways, but **you have to report it on the weekly quiz for credit**. Most weeks, some or all of the following options will be available. Check each week's Learning Engagement Quiz for the exact options for that week.

- Weekly virtual class meeting or student hours you attend, and ask/answer at least one question through speaking or the chat. (1 point per meeting for up to 3 points total per week)

- Reading and/or video annotating InClassActivity or other assignments through Perusall. Note that even though Perusall assignments have a fixed due date, you can still annotate them anytime during the week without any penalty.
- Asking/answering a question, or creating a post that advances the discussion of a math topic in the weekly Whole Class Discussion and/or Learning Objectives channels on Microsoft Teams (1 point per post for up to 2 points total per day).
- Study Groups engagement with others through Microsoft Teams (1 point for each study group you joined and contributed).
- Other engagement with classmates or activities related to the content we're studying this week. This is separate from Challenge group work and Extra Credit Reflections. (1 point towards individual learning only).
- Reflecting about your learning progress: how did you flourish as a mathematician? how does the material we are learning connect to you and your community? Share with me any questions or concerns (1 point towards individual learning only)!

Every two weeks, I will create new groups of private channels in MS Teams. Challenges will be largely based on the type of questions on the InClassActivities besides the Learning Objectives sample questions, so make sure to use both of those resources well. See Course Structure section for more info on the flow of the week.

For example, let's say a student earned on Perusall 1 point on an InClassActivity, 1 point on a reading, and 2 points on two videos assigned that week. The student also posted in the weekly whole class discussion on Microsoft Teams on Thursday and Sunday, went to a Study Group session, tried to explain what they learned that week to a parent, and reflected on their learning. They earned 4 points from Perusall, 2 points from whole class discussion, 1 point from other engagement, and 1 point from the reflection, for a total of 8 points.

12 Online Homework Assignments

We will have homework online (through Canvas).

The due dates are posted in the Canvas calendar, but I encourage you to attempt to do most of the homework at least one day before it's due in case you end up struggling with a question. You have 10 late passes throughout the whole quarter in case you need to extend a deadline. They will only extend it by 48 hours from the deadline, but you can use more than one per assignment.

Generally you have 2 attempts per question, but even after this, you can "attempt a similar question" to reset with possibly a different function/numbers and earn full credit. This means that you basically have infinite tries, so you are expected to get 100% on on this category.

Most questions have videos or explanations attached to assist if necessary, but I do highly recommend spending at least 15 minutes yourself first on a question (but no more than 30 minutes) before watching the videos or searching additional help.

Please do your work on paper when completing homework, as challenges will require you to show your work (even for true/false or multiple choice questions), and it is also helpful to be able to go back and find your work when studying. I recommend having a notebook dedicated to homework.

Getting 100% on the homework with help doesn't mean you have learned the material, but rather you were able to follow instructions (analogously: following the GPS to a destination doesn't necessarily mean you understand how to get there). It is important that you learn the underlying ideas behind a problem, besides being able to solve it. Ask yourself: what was the point/key idea of this question? How could I modify the question to get a different outcome? How does changing parts of the question effect the process to get to an answer? How can I use it in the future? When should I use this method instead of others?

Successfully doing the online homework should be considered the first step towards understanding the corresponding learning objectives of the course. Challenge questions are usually harder than online homework questions, which is one of the reasons for having In-Class Activities, as well as the Learning Objectives pdf, and the other resources provided.

13 Extra Credit Reflections

Students will be assigned extra credit reflective assignments that will require a submission in either written, audio, or video formats, as well as 3 replies in writing to 3 other student posts on Canvas under discussions for each reflection. Each reflective assignment will give students at most 5 extra credit Learning Engagement points. It may happen that some students submit a reflection last minute, so I won't penalize for replying to others after the deadline. If there's not at least 3 other posts besides yours, make a comment under another reflective assignment and post a reply to your own assignment letting me know that another reply may be found under "X reflection." The purpose of these reflections is to explore together some issues related to the class, and improve students' mindset and math learning habits.

14 Miscellaneous Items and College Policies

Help with Canvas. The instructor will regularly publish and update assignments, and weekly modules. Students need to check Canvas regularly. Students can find help for it by following the link here: [Student Canvas Help](#).

Help with Microsoft Teams. Your learning engagement grade will be based mainly on your weekly group discussion activity, and virtual class meeting, both through MS Teams. Students need to check MS Teams regularly. You can find help for it by following the link here: [MS Teams Help](#).

Make-up Policy. In general, if you're unable to attend a challenge for whatever reason, or you don't feel like you would get any completed learning objectives on it, you can decide not to turn it in, and instead get extra time and questions on future challenges (except Challenge 4, which is take-home). You can get 12 min per question, which includes the technology needed to scan and upload, for up to a maximum of one extra hour per challenge. Going over the regular time allowed should be subtracted in future challenges to compensate for it. For example, suppose you go into Challenge 1 and feel like you did not study well for it, so you don't turn it in. Then you got 60 min and 5 questions extra to include within other challenges. You could use up all the extra 60 min and 5 questions on Challenge 2 which has 8 questions (so you would solve it all in 2 hours), or you could use 12 minutes on Challenge 2 for solving one additional question, and another 48 min on Challenge 3 for solving four additional questions. Please let me know though your plans so I don't get alarmed about it. It is the students' responsibility to make arrangements for any work missed due to an absence. Communication is key!

Accessibility. The online elements of this course are designed to be welcoming to, accessible to, and usable by everyone, including students who are English-language learners, have a variety of learning styles, have disabilities, or are new to online learning. Be sure to let me know immediately if you encounter a required element or resource in the course that is not accessible to you. Also, let me know of changes I can make to the course so that it is more welcoming to, accessible to, or usable by students who take this course in the future.

Affirmation of Inclusion. Bellevue College affirms the diversity of human identities and experiences and is committed to creating spaces free from harassment and discrimination (4000 Institutional Commitment to Inclusion). Furthermore, Bellevue College rejects all forms of racism, homophobia, sexism, xenophobia, religious intolerance, classism, ableism, ageism, language bias, and hate speech or actions that attempt to silence, threaten, or degrade others.

In classroom settings, we might disagree with views shared in the classroom; however, courteous, and respectful behavior and responses are always expected. When providing criticism, it is important to focus on the ideas and not the person.

Faculty are encouraged to disrupt and address hate speech and behaviors. Students are also encouraged to speak up and advocate when they experience, or witness hate speech and behaviors. Faculty, staff, and students also are encouraged to submit a report to the CARE Team regarding any concerns of discrimination, harassment, or inappropriate and disrespectful conduct. See Affirmation of Inclusion.

Reasons of Faith and Conscience. Reasonable Accommodations for Reasons of Faith and Conscience: Students who will be absent from course activities due to reasons of faith or conscience may seek reasonable accommodation so that grades are not impacted. Such requests must be made within the first two weeks of the course to the office of the Associate Vice President of Student Affairs (see Bellevue College Policy 2950 (<https://www.bellevuecollege.edu/policies/id2950/>)). In the event you feel you are being discriminated against based on faith or conscience, you may refer to the procedures outlined in the college's Discrimination, Harassment and Retaliation Policy 1440P (<https://www.bellevuecollege.edu/policies/id-1440p/>).

Annual Notice Non-Discrimination. Bellevue College does not discriminate on the basis of race or ethnicity; creed; color; national origin; sex; marital status; sexual orientation; age; religion; genetic information; the presence of any sensory, mental, or physical disability; or veteran status in educational programs and activities which it operates. Bellevue College is prohibited from discriminating in such a manner by college policy and by state and federal law. All college personnel and persons, vendors, and organizations with whom the college does business are required to comply with applicable federal and state statutes and regulations designed to promote affirmative action and equal opportunity.

Reports of gender and sex-based based discrimination, sexual misconduct, or retaliation by a student should be raised with the Title IX office (see 1440P2 for contact information). In cases where the impacted party is a student and the responding party is a college employee, the Title IX coordinator will direct the matter to the Office of Human Resources (HR). All other reports, including all reports where the impacted party is an employee, should be raised with the HR. If a report is against personnel in the Title IX office or HR, it should be submitted to the president's office for referral to an alternate designee. See Equal Opportunity (<http://www.bellevuecollege.edu/equal/>) for the Spanish and Chinese versions of the anti-discrimination notice.

Confidentiality and Mandatory Reporting. As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep information you share private to the greatest extent possible. However, I am required to share with the Title IX Coordinator any and all information regarding sexual assault and other forms of sexual misconduct (e.g. relationship violence, stalking) that may have occurred on campus or that impacts someone on campus. Students may speak to someone confidentially by contacting the BC Counseling Center at (425) 564-2212. The Title IX Office can be contacted at 425-564-2641 and more information can be found at Title IX (<http://www.bellevuecollege.edu/titleix/>). If you have any concerns, you may report them to: Report Concerns (<https://www.bellevuecollege.edu/reportconcerns/>).

Science Division Policy on Cheating. You, the student, are expected to conduct yourself with integrity. If you cheat, or aid someone else in cheating, you violate a trust. Cheating includes, but is not limited to, copying answers on tests or assignments, glancing at nearby test papers, swapping papers, stealing, plagiarizing, and illicitly giving or receiving help on exams or assignments. If you cheat, the following actions will be taken:

- You will receive a grade of 0 on the work (exam, assignment, lab, quiz, etc.) where the cheating occurred. This grade cannot be dropped.
- A report of the incident will be sent to the Manager of Student Conduct. He/she may file the report in your permanent record or take further disciplinary action such as suspension or expulsion for college.

If you feel you have been unfairly accused of cheating, you may appeal. (For a description of due process, see WAC 132H-126.) Information about Bellevue Colleges copyright guidelines can be found at <http://bellevuecollege.edu/lmc/links/copyright.html>.

Student Conduct Code and Academic Integrity. Any act of academic dishonesty, including cheating, plagiarism (using the ideas or words of another as one's own without crediting the source), and fabrication, and inappropriate/disruptive classroom behavior are violations of the Student Conduct Code of Bellevue College. Examples of disruptive behavior include, but are not limited to, repeatedly talking out of turn, arriving late or leaving early without a valid reason, allowing cell phones to ring, and inappropriate behavior toward the instructor or classmates. The instructor can refer any violation of the Student Conduct Code to the Manager of Student Conduct for investigation. Specific student rights, responsibilities, and appeal procedures are listed in the Student Conduct Code at: Student Code.

Important Links. See "Important Links" page online for more information about the E-mail and MyBC, Public Safety, the Academic Calendar, the Academic Success Center, and more.

Disability Resource Center (DRC). The Disability Resource Center serves students with disabilities. Common disabilities include physical, neurological (e.g. Autism, ADD/ADHD), and mental health (e.g. depression, anxiety). If you are a student who has a disability or if you think you may need accommodations in order to have equal access in your classes, programs, activities, and any other services, please contact the DRC.

If you require assistance in an emergency, please meet with your individual instructors to develop a safety plan for while in class and contact the DRC to develop a safety plan for while you are elsewhere on campus.

The DRC office is located in building U Room 001. You can contact the DRC by stopping by the office at U001, calling our front desk phone number (425) 564-2498, emailing drc@bellevuecollege.edu. Deaf students can reach us by calling TTY: (425) 564-6189, or by Skype (account name DRCatBC). For more information about the services we offer, including our Initial Access Application, visit our website at Disability Resource Center.

Service Animals are allowed in this classroom. Emotional Support Animals need to be approved through the DRC. All other animals will be asked to leave. If you believe you need your animal with you, please connect with the DRC and refrain from bringing your animal until a decision has been made.

Additional Information note about accessing Canvas from the People's Republic of China: some users have reported that they do not have full access to all Canvas functionality from within the People's Republic of China. This appears to be due to Canvas' parent company, Instructure, not fully committing to Chinese government requirements regarding internet operations within the country. The Chinese government does not inform foreign entities of their policy updates; therefore, Bellevue College cannot anticipate access to Canvas.

If you will be in China during the quarter, you should prepare for intermittent and uncertain access to Canvas.

Source: Access to Canvas in China (<https://support.canvas.fsu.edu/kb/article/1157-access-to-canvas-in-china/>).