Fall 2020-MATH163BC - Calculus III (Prof Chen)

MATH 163 Syllabus

The Basics

Instructor: Joe P. Chen (jpchen@). ***Office Hours:*** MWR 1:30p-3:30p ET; also by appt. Check my scheduler to book 15-minute appointments.

TAs: Jack Tregidga '21 (jtregidga@) and Joseph Smith '22 (jrsmith@). ***Office Hours TBA.***

Individual or group appointments are welcome. Also, please utilize the **Piazza Q&A board** often---it is available 24/7, and someone may get to your answers faster than you'd expect!

Text: *Multivariable Calculus* by James Stewart (8th ed.), Cengage Learning. Buying a hardcopy is NOT necessary. You will have electronic access to the entire text of Stewart's *Calculus* through WebAssign.

All you need is an access code to **WebAssign**, good for one semester. You do not need to purchase the code now. Sign up for a free 14-day trial (validity starts from the first day of classes, August 27), and once you are sure about taking the course, you may purchase the code. After 2 weeks into the semester, everyone needs to have a WebAssign access code.

CAUTION! If you already have a WebAssign access code from a previous semester, double-check if it is good for the lifetime of the textbook (Stewart's *Calculus*, 8th ed.)---you should be able to reuse it. If you have an access code for Stewart's *Calculus with Early Transcendentals*, 8th ed., please contact WebAssign customer service who will help you gain access to the course site.

Math Department's calculus "dropdown" policy: If MATH 163 proves too challenging for you, you may request to enroll in MATH 162 instead, within the first 3 weeks of the semester, without penalty. Contact the instructors for details.

Course Mechanics

While officially we meet 3 days a week (for 50 mins each), the amount of preparation is equivalent to having an additional 4th 50-min session.

For each day of class (MWF) please follow this routine.

- Finish watching a prerecorded video lecture before class. ***Time: 25 Mins.***
- 10 minutes into the scheduled class: Join the Zoom session, and ask any questions you have. ***Time: 10 Mins.***
- Last 30 minutes of the scheduled class: co-op problem solving in Zoom breakout rooms. ***Time: 30 Mins.***

Each Zoom class meeting (excluding the co-op session) will be **recorded**, which will then be posted on Moodle for playback purposes. **ONLY** the participants of MATH 163 B/C---instructor, TAs, and students---are given access to the videos. If you do not wish to be shown, please turn off your camera/video during the recording session.

Objectives of MATH 163

This course is the third and last course in our calculus sequence, covering the differential and integral calculus of "high-dimensional" functions. This requires good working knowledge of 2D and 3D geometry, so get ready to sketch and visualize surfaces, volumes, etc.!

A rough topic-by-topic breakdown is as follows (numbered sections refer to Stewart).

- Parametric curves and polar coordinates (Ch. 10, 1 week).
- Vectors, geometry in $\mathbb{R}^2$ and $\mathbb{R}^3$ (Ch. 12, 2.5 weeks).
- Vector functions and their calculus (Ch. 13, 1.5 week).
- Partial differentiation (Ch. 14, 4 weeks).
- Multiple integration (Ch. 15, 3 weeks).
- Vector calculus (Ch. 16, through Green's Theorem, 2 weeks).

Prerequisites: Proficiency in single-variable calculus at the level of Calculus I & II (MATH 161 & 162). You are expected to already know how to differentiate or integrate power, trig, exponential, and logarithmic functions, and use integration by substitution. These topics will hardly be reviewed. While we do not rely heavily on topics taught in Calculus II, it is a prerequisite for taking MATH 163.

Assignments, Exams, and Grading Scheme

Assignments: WebAssign HW (10~15 problems, due every Friday at 11:59pm ET); co-op problem set (due every Monday before class).

- **WebAssign HW:** You have a maximum of 10 attempts on each problem. If you don't get the problem right on the 1st attempt, don't panic! Read the hints and the relevant topic before making a second attempt! If you are still unsure, post your question on Piazza, so others may assist you!

Late penalty: You may request a 24-hour extension on any unfinished WebAssign homework. There is a 30% penalty levied on each problem completed past the regular deadline. No credit will be awarded for work submitted 48 hours past due.

- **Co-op problem sets:** You are asked to scan your weekly co-op work to a **single pdf file** (use, for example, the Adobe Scan app on your smartphone or tablet), and upload the file to Moodle, at the designated due times.

Exams: Exam 1 (9/22), Exam 2 (10/13), Exam 3 (11/17), Final Exam (12/18). Note that Exam 2 takes place one day before the end of Grading Period A; and the final exam caps the end of Grading Period B. The exams will take place on-line; details will be announced.

Grading scheme: WebAssign HW (14%); Co-op problem sets (14%); the 4 exams---3 midterm and a final (18% each).

For your information, a letter grade guidance for each exam will be issued. An overall course grade guidance will be issued at the end of each grading period.

Course web sites

Moodle: For day-by-day announcements, lecture videos, and course materials and resources. Co-op problem sets are submitted to Moodle for grade.

WebAssign: For electronic access of Stewart's Calculus textbook, and for doing the WebAssign HW.

Piazza: For 24/7 Q&A on class topics and HW/exam questions. You may ask your questions, and answer other people's questions, anonymously!

Zoom: For in-class meetings and office hours.

Course preparation & mechanics

Mastering this course requires your initiative and active participation. To this end:

- Please *read the assigned sections* in the text before each lecture. The course moves at a brisk pace (1 section per day), so don't fall behind!
- While course attendance is not factored into your grade, *you are still expected to attend all classes.* Every class meeting almost always builds upon materials covered from the previous class(es). If you miss any class, it is your responsibility to catch up on whatever you missed by consulting the course materials, asking your classmates, or seeing me in office hours!
- Form study groups! You will frequently work in groups of 3 or 4 during the in-class co-op problem sessions. Please get to know each other and help each other out!

Homework assignments form an integral component of the course. You should *strike while the iron is hot*, that is: do the homework problems associated with the day's lessons as soon as possible. Review what we have gone through during class, and use the key concepts and techniques from class to solve the homework problems.

Where to **seek help** when you feel stuck and/or fallen behind:

- Come see me or the TA during office hours, or arrange for an appointment.
- Post your questions on Piazza so they get answered! (By the same token, if you know an answer to a Piazza question, don't hesitate to post it!)
- Talk with your classmates. They may be your best intellectual and mental resources! Help each other out!
- The Center for Learning, Teaching, and Research (CLTR) offers resources to help you work towards academic success. You may request to work with a **peer tutor** through CLTR.

Policy matters and final reminders

Academic integrity: Everyone at Colgate is required to abide by the Academic Honor Code. Please familiarize yourself with the definitions of *cheating*, *fabrication*, *facilitating academic dishonesty*, and *plagiarism*, as described in the Honor Code. Any aforementioned academic offense will be reported and reviewed according to Colgate University policy (see ``Reporting Procedures'' therein).

Accommodations: If you encounter difficulties that prevent you from in-class participation, completion of regular assignments, or taking exams at the scheduled times, please let me know. I can make accommodations based on a documented, well-reasoned excuse.

Did I miss anything? Let me know! I am a mathematician, and my job is to diagnose a problem and resolve it expediently. Please don't be taken aback by the speed at which I solve your problems!

tl;dr: Be proactive and forthcoming about your questions and needs! Tell me how I can help you learn more effectively!

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