INSTRUCTOR'S CONTACT INFORMATION

Instructor: William E. Tavernetti
Email: etavernetti@ucdavis.edu
Office: MSB 1103
Tutoring Hours:

- MWF 1 - 3+ at my office MSB 1103 (the "+" means I will stay late if we are being productive)
- I will answer quick questions after class everyday (find me outside)
- There will also be extended office hours and review sessions TBA before the exams.

Pro-tip 1: I receive a high volume of emails. Although I am often pretty good about speedy replies, if you don't get one, then please just take the initiative to contact me again. I probably just missed your message, or was too busy to reply when I first read it, then forgot about it.

Pro-tip 2: Office hours are a great place to meet people to study with for the course and get help! I suggest that you make a commitment to attend office hours for <u>all</u> your courses regularly.

Teaching Assistant: Alexander Blaine
Email: anblaine@math.ucdavis.edu
Office: MSB 3204
Office hours: Tuesday and Thursday from 1-2

Pro-Tip: Learn the name of your TA, their email, and when their office hours are. Go to their office hours.

Drop-in Tutoring: http://success.ucdavis.edu/academic/dropin.html
26 South Hall: MTWRF from 9-11 a.m.

COURSE INFORMATION

Course Title: MAT-022B-001 - Differential Equations
Number of Units: 3.0
In-class Time: MWF 1000-1050 AM
Location: VEIMYR 212
Course Homepage: Canvas
CRN: 39396
Prerequisites: Prerequisite: course 22A or 67 with C- or above.
Textbook: Elementary Differential Equations and Boundary Value Problems, 10th Edition, by Boyce/DiPrima (Wiley)
Textbook Remarks: I will be using the 10th edition, but you do not have to buy this edition of the book! An older edition (even back to the seventh edition as far as I know, will be good for the course). This material has not changed recently and we will type up the problem sets for you, so your textbook edition will not cause big problems in your homework and alignment with the course, although it might affect some of the section designations or references I give from the book.
Software: Matlab or Octave is preferred. Octave is free, Matlab is easier to use and better, but you have to buy it. Matlab is an investment and I recommend buying it (the student version). You can also make a math account and then use Matlab for free in the Math Department computer lab: https://www.math.ucdavis.edu/courses/class-accounts/

Pro-tip: Notice that you can get all the books and software you need in this class for free, or very nearly so.

Description:
Solutions of elementary differential equations. GE credit: SciEng | QL, SE.—F, W, S. (F, W, S.). In this course we will study first and second order differential equation, Laplace Transform and systems of first order equations. Numerical solutions using computers will also be emphasized.

We will closely follow the department syllabus: https://www.math.ucdavis.edu/courses/syllabi/. Use the book, homework and lectures to guide you through the current material, while using the department syllabus and schedule of lectures as a reference for future material.

GRADING

Grades will be assigned on the basis of weekly homework, 2 midterms and the final. Some extra credit projects will also be available. You are responsible for checking your grades on Canvas and insuring they are accurate and up to date.

Homework……………   20% (approx. weekly – drop lowest 1)
Midterm 1………………   20% Fri, Oct 14
Midterm 2………………   20% Weds, Nov 9
Final Exam…………….   40% Mon, Dec 5
Extra Credit …..............   1.5% points total (3 total, details TBA) – optional

- Missed exams and late homeworks are zero points by default.
- **Late homeworks are not acceptable. Turn in what you have when it's due.**
- Depending upon the circumstances a make-up exam may be provided (ie athletes, medical problems and the like). The later an excuse / reason is in forthcoming, the better it needs to be.

Requests for grade changes on tests and quizzes**:**
- Simple changes only (I.e. a wrongly added score): come to me directly during office hours, after class, or show the TA.
- All regrade requests must be made within 10 days of being returned to the class.
- **For homeworks**, ask me or your TA in office hours.
  - Be careful... they and I can raise or lower your score.
- **For midterms** if you feel you deserve more points ...
  - Explain on the test - in writing - on the front page why.
  - Give me tests to be regraded after or before any class, or during office hours.
  - **Your entire exam will be regraded** by me, with special attention given to your regrade request.
  - The exam grade is open again, so your **overall exam score may go up, or it may go down.**

Final grades:
- Final grades will be based roughly on the standard grade scale, however...
  - A small (helping) curve may be introduced if necessary.
  - Only the top few students will earn an A+ instead of A, not necessarily 97% and above...
- **It is your responsibility to check the accuracy of your Canvas scores during the quarter!**

HOMEWORK

Homework will be assigned to complement the lectures and help you organize your studies and prepare for the exams.
- Find the homework assignments on our Canvas site under Assignments.
- It is your responsibility to do the homework and ask for help when you need it.
- **Turn it in on time even if you are not finished** – turn in what you have done.
- Homework is your 3rd midterm and is worth a sizable portion of your grade.
- You may work in groups, this is strongly encouraged, but everyone must do their own write up and have understanding of their own work.

PLANNED SCHEDULE OF LECTURES

Day	Section	Notes
Weds, Sept 21	1.1-1.3	
Fri, Sept 23	1.1-1.3	
Mon, Sept 26	2.1	
Weds, Sept 28	2.2	Homework 1 (due in class)
Fri, Sept 30	2.3-2.4	
Mon, Oct 3	2.5	
Weds, Oct 5	2.7	Homework 2 (due in class)
Fri, Oct 7	2.8	
Mon, Oct 10	2.9	
Weds, Oct 12	3.1	Homework 3 (due in class)
Fri, Oct 14	Midterm 1	In class: 1.1 - 2.9
Mon, Oct 17	3.2-3	
Weds, Oct 19	3.2-3	
Fri, Oct 21	3.4	
Mon, Oct 24	3.5	Homework 4 (due in class)
Weds, Oct 26	3.6	
Fri, Oct 28	3.7	
Mon, Oct 31	3.8-3.9	Homework 5 (due in class)
Weds, Nov 2	6.1	
Fri, Nov 4	6.2	
Mon, Nov 7	7.1	Homework 6 (due in class)
Weds, Nov 9	Midterm 2	In class: 3.1 - 6.2
Fri, Nov 11	Veterans Day	
Mon, Nov 14	7.2-7.3	
Weds, Nov 16	7.4	
Fri, Nov 18	7.5	
Mon, Nov 21	7.6	Homework 7 (due in class)
Weds, Nov 23	7.7	
Fri, Nov 25	Thanksgiving Holiday	
Mon, Nov 28	7.8	
Weds, Nov 30	7.9	
Fri, Dec 2	Applications and review	Homework 8 (due in class)
Mon, Dec 5	Final Exam (cumulative)	8-10 AM

- Lecture attendance and discussion are considered mandatory. You will be responsible for everything presented or assigned in lecture regardless of whether you are present or not.

EXAMS

Please bring your UC Davis issued photo-ID card to each exam.

There will be 2 midterm exams and a final.

- Use the practice tests, lecture notes and homework as a guide for what to study.
- Practice exams, solutions and extra review sessions will be offered.
- There will be no substitutions or retakes on exams.

CLASSROOM AND PERSONAL ETIQUETTE

In the spirit of the standards set forth by the university, it is expected that everyone respects the right of others to focus and learn, which includes minimizing disruptions such as side conversations, arriving late, packing up or leaving early and even sleeping. If you need to leave early, or arrive late (which happens), please do so quietly and sit in the back if possible. We may also have some in class activities where you will be talking and working with your fellow classmates, please respect each other and be open to everyone's comments and ideas.

- **Before Lecture:** Please do not ask me to look at papers or queue up to ask me questions. I have to get the lecture started on time, check equipment, and I am distracted thinking about the lecture. It's nothing personal, just please wait until after lecture (or another time).
  - Papers can be left on the front table when things need to be turned in at the start of class.
- **After Lecture:** It is perfectly fine to ask me questions after class, turn in work, etc. however we typically must vacate the room in a timely fashion (3-5 min), so look for me outside after the lecture, or follow me outside. Usually, I am quite happy to stay around and answer questions and very much look forward to helping you!

HOW TO BE SUCCESSFUL

You will likely not achieve good grades and learning you are proud of without a good systematic approach to your course work for each and every class. I have my own algorithm for taking classes that works well for me, but every learner is different and you need to find your own style that helps you maximize your potential. Some universal tips are:

- Understand the course and school requirements – you have to know what you need to do in order to succeed!
- Put in the time to work, study and actually think about things – **learning takes time**, but how you study, whether it be in groups, lots of scratch paper problems, tutoring, etc, will depend on what works best for you!
- Be an active learner in and out of the classroom, go to class and pay attention, take notes, watch youtube videos on the material, ask questions when you have them (sometimes even in class), read the textbook, search the internet for worked example problems, know a couple people in the class you can email and occasionally study with – demand initiative in your own education, it will be among your most important assets in life!
- Take advantage of learning help services – office hours, campus tutoring resources (Math Café, http://lsc.ucdavis.edu/math.html, http://www.math.ucdavis.edu/courses/learning, https://www.math.ucdavis.edu/~kouba/ , etc,), find what is out there and use it!
- Use technology – learn how to use the internet to help with studying (searches, www.calculus.org, etc), use the class Canvas!
- If you have questions, concerns, comments, problems, communicate with me ASAP: you can email me, come to my tutoring hours, or talk to me after class!
- Need a tutor? I'll just leave this here: https://www.math.ucdavis.edu/resources/learning/tutors/
- Seek help / resolution early as problems arise!

Here is a matrix of typical effort / outcomes associated with this course. There can be quite a lot of variation from student to student, but this should give you some idea of what to expect.

Desired Grade	Lectures Missed	Present Knowledge / relationship with studying	Lecture Demeanor	Weekly hours working problems / exam preparation	Office hours and calc room visits
A	1 or less	Current or slightly ahead / Many specific questions – asks most of them.	Focused, prepared for 15 min. ahead of time. Understanding is often deep.	12 or more / Studying for exams runs out of problems to do and is mostly getting them right without much help.	Regularly
B	2 or less	Slightly behind / Many questions – asks some of them.	Focused, but unprepared for lecture. Mostly gets it, but will struggle working on it alone.	Averages to 8 or more / Crams for exams, and at test time is where the "A" student was a few days ago.	Sometimes
C or less.	3 or more	Falls further behind everyday / Many questions – asks few of them.	Focus drifts in and out. Understanding is limited as is problem solving even with solutions or help nearby.	Averages to less than 8 / Crams for exams, and at test time is confused and full of questions the "B" student had a week ago.	Rarely
D	Fallen noticeably behind the C group of students. Knowledge is not up to university standards (unsatisfactory work)				
F	Fallen way behind the rest of the class. Missed, or badly failed exams and quizzes.				

SOME HELPFUL WEBSITES

- https://www.math.ucdavis.edu/~tracy/courses/math22B/math22B.html
  - Some useful links and old exams
  - Another textbook to consult as a refernce (free)
- https://www.math.ucdavis.edu/~hunter/m22b/m22b.html
  - Has many fully worked solutions to problems from our textbook
  - Also has exams and solutions
- https://www.math.ucdavis.edu/~bremer/classes/mat22b/index.html
  - Has many fully worked solutions to problems from our textbook
  - Also has exams and solutions
- http://sasc-specialists.ucdavis.edu/casey/M22B/

PARTICIPATION

Participation is a strong predictor of academic success. Some research shows "a strong negative correlation between absences and final grades " and that "class attendance [is] a better predictor of college grades than any other known predictor of academic performance, including scores on standardized admissions tests such as the SAT, high school GPA, study habits, and study skills." [1, 2] In addition to class attendance, the university expectation, and mine, for this 4 unit course is 3 hours of lecture and 9-12 hours of additional studying per week. My expectation is that you attend every lecture, and that this is a necessary, but not sufficient condition for you to succeed in this course. It will also be helpful for you to attend review sessions and office hours.

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Useful Tip:
If you feel you are losing focus and want some help, let me know and maybe I can give you some useful suggestions or help you find people to study with. Do not be afraid to let me know what's going on - and the earlier the better. If you tell me, maybe I can help. If you hide and let the problems compound, it becomes less likely my help will be effectual.

STUDENTS WITH DISABILITIES

If you are a student with a mental or physical disability, you may be entitled to certain accommodations such as extended time on exams. Please contact the Student Disability Center (http://sdc.ucdavis.edu/) to ask for such accommodations or for more information. If you already have such accommodations, then please let me know about them as soon as possible.

ACADEMIC INTEGRITY

Cheating is a serious offense at UC Davis and this class has a zero tolerance policy for it. You may not realize this, but it is also very often quite easy to detect, and each quarter a few students ruin their credibility and integrity this way. Specially designed protocols will be administered during this course and on the exams to help detect and prevent cheating. All suspected cases of academic dishonesty will be referred to Student Judicial Affairs (SJA) for review and they will handle the matter from there. Be advised that SJA punishments, even for a first or what seems like a minor offense, can be devastating and have a lasting impact on your academic career (if it even continues). You are WAY better off to fail and retake a class than getting caught trying to cheat to attain any grade. If you feel like you need to cheat or you are not sure what constitutes academic dishonesty, I urge you to seek help from academic advisers, friends, myself, grad student mentors, your parents, or student health and counseling services: http://shcs.ucdavis.edu/ before you make a decision that may permanently affect your reputation, and could easily jeopardize your goal of graduating from UC Davis, getting into any graduate programs, or taking one of the many desirable professions that have a critical ethics component.

References

1. Gump, S.E. "The Cost of Cutting Class: Attendance As A Predictor of Success" College Teaching Volume 53, Issue 1, 2005

2. Crede, M. et. al. "Class Attendance in College A Meta-Analytic Review of the Relationship of Class Attendance With Grades and Student Characteristics" Review of Educational Research. June 2010 vol. 80 no. 2272-295