Math 2233: Differential Equations
Fall 2018

Instructor: Dr. Michael Oehrtman
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MSCS 426

Office Hours: MWF 12:30 pm – 1:30 pm
in the MLSC, 5th floor of
Edmon Low Library
or by appointment

Class Times: MWF 11:30 am – 12:20 pm

Location: Life Science East 113

Website: https://online.okstate.edu/d2l/home   (then log in and find our course)

Prerequisite: Grade of C or better in Math 2144 or equivalent

Textbook: *Fundamentals of Differential Equations and Boundary Value Problems*, 7th edition, by Nagle, Saff, and Snider. Your e-book access is automatically available in D2L and direct billed to your bursars account after the second week of class. There will be an opt-out system for students who would rather obtain a copy of the book in another manner. Students who purchase e-book access may also purchase a loose-leaf copy of the book from the OSU Bookstore.

Syllabus Attachment: Please read the OSU syllabus attachment, available on the class website. This has a lot of important information, including instructions about disability accommodations. Please contact me privately during the first week of the course if you need accommodations as a result of a disability.

Homework: You should allot significant time to spend on the homework for this class well in advance of the due date. Very few students will be able to earn much credit on an assignment worked just a day or two before it is due. You should also seek help in office hours well before the day an assignment is due, since it will take time to solidify and apply the ideas you take away from our discussions. The best way to ensure that you are developing the appropriate insights and on the right track is to talk to other students about the problems. I encourage you to work together, but each student must write up his/her solutions. All assignments and due-dates will be posted on the homework page of the class website, and you are responsible for keeping track of them. If you forget to bring your homework to class, you may submit it up to 24 hours later with a 20% penalty. No homework will be accepted later than this under any circumstances.

> Type or write all of your work LEGIBLY on 8½"×11" paper with at least ONE-INCH margins on all sides free of writing except your name, date, and assignment number, and STAPLE all pages together.

In order to earn an A or B for the course, I anticipate that most people will need to spend *8 to 9 hours per week* outside of class on homework, reading, and studying. If you are struggling in the class, you should discuss your situation with me immediately and will need to devote more time to studying each week.

Quizzes: I will give in-class or take-home quizzes on a regular basis that focus on reading assignments, class work, or other assigned material. Quizzes may or may not be announced in advance.

Project: You will consult with a professor in your degree program to identify a differential equation that is important in your field of study. You will then write a paper that discusses the modeling behind this equation, including
   i.   a description of the scientific context modeled by your equation,
   ii. a description of all quantities involved
   iii. an explanation of the assumptions, constraints, theories, etc. used to relate the quantities,
   iv. a derivation of the differential equation and explanation why it is an appropriate model for the scientific context, and
   v.   analytic or numerical solutions to the equation for a representative variety of conditions with a discussion of the meanings of the solutions.

The emphasis of the paper is to clearly articulate the meanings of the quantities involved, justify the mathematical relationships between them based on scientific principles, and show how those relationships lead to the differential equation as a model of the given phenomenon. You must complete phases of the project as follows:

Wednesday, September 10: Deadline to email your proposed topic to me for approval.
Friday, November 9: First draft of the paper due.
Friday, December 7: Final paper due.

Exams: I will announce dates and coverage of two in-class exams at least one week in advance in class and on D2L.

Final: The final exam will be comprehensive and administered at the officially scheduled time, **Monday, December 10 from 10:00 am to 11:50 am**. Requests to take the final examination at a time other than the published time will not be granted except in cases of conflict with the scheduled exam time for another course, having three or more exams scheduled in one day, personal emergencies, or for reasons of religious practice. In particular, nonrefundable plane tickets, weddings, work schedules, and the like are not acceptable reasons for rescheduling final examinations. Please keep this policy in mind when making end-of-semester plans. You must tell me in writing by Monday, November 24, if you have a university-approved conflict with the final exam time.

Grading: Grades will be determined as follows.

	Points		Grade	Points earned
Homework	300		A	900 – 1000
Quizzes	200		B	800 – 899
Project	100		C	700 – 799
Exam 1	100		D	600 – 699
Exam 2	100		F	0 – 599
Final exam	200			
Total	1000			

I reserve the right to use discretion if you are near the borderline between two grades, considering performance on the final exam, improvement or decline during the semester, attendance, and my subjective judgment of your effort. I will not drop any scores.

Conflicts: I will offer reasonable accommodation in the event that you miss an in-class quiz or exam for a valid and documented reason, assuming documentation is provided **in advance unless absolutely impossible**. You need to tell me as soon as you know you have a conflict and will be ineligible for a make-up if you do not. If you won't be in class when homework is due, turn it in early or give it to someone else to turn in prior to the deadline. I require proof of the reason for your absence (e.g., a doctor's note, proof of involvement in an OSU-sponsored activity, etc.), and you should not assume you will be eligible for a make-up exam or quiz unless I have explicitly approved your request.

Calculators: Calculators will not typically be allowed on exams or quizzes.

Academic Honesty: Don't cheat. Don't copy off of other students, allow other students to copy your work, or present work you find in printed or electronic sources as your own. You may get help on homework from other people or sources but should write your solutions independently, without looking at anything someone else has produced. For questions, contact the Office of Academic Affairs, 101 Whitehurst, (405) 744-5627, http://academicintegrity.okstate.edu. I deal with cheating very harshly; don't take any chances.

What if you need help? You have lots of resources for this course. Often students find it helpful to talk to each other and work through homework or practice problems together. For **quick** questions, you can send me e-mail and you should certainly come see me in person during office hours if you have something more than a quick question. Finally, there is free tutoring available in the MLSC. See http://www.math.okstate.edu/mlsc for details. **Above all, see me early if you have questions.** Good luck.