MATH 215/255 ALL 2021W1 Elementary Differential Eq uations I / Ordinary Differential Equations

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This is the common Canvas site for MATH 215 / MATH 255 and is the source of all central course information, including the course outline, course policies, course study materials, access to online homework, course grades, and general announcements.

Purpose: This course is an introduction to ordinary differential equations (ODEs) and models that involve ODEs in several areas of application including physics, chemistry, biology, ecology, and engineering.

Instructor-in-Charge: Professor Tai-Peng Tsai.

List of Math 215 / MATH 255 Sections:

Section	Instructor	Location	Time	Section Page
101	Dr. Masoud Daneshi	Buchanan A102	8-9am MWF	**[Section 101](#)**
102	Dr. Antoine Morente	Buchanan A104	9-10am MWF	**[Section 102](#)**
104	Prof. Tai-Peng Tsai	Buchanan A101	1-2pm MWF	**[Section 104](#)**

Textbook: [Notes on Diffy Qs: Differential Equations for Engineers](https://www.jirka.org/diffyqs/) (https://www.jirka.org/diffyqs/) , by Jiri Lebl, (online and free, there is a link to affordable paperback)

Course Topics: See **[Topics](#)** for a list of topics in the order (roughly) that they will be covered.

Pre-reqs and Co-reqs:

- Pre-reqs: Calculus II: (one of MATH 101, MATH 103, MATH 105, MATH 121, SCIE 001) and Linear Algebra: (one of MATH 152, MATH 221, MATH 223).
- Co-reqs: Multivariable Calculus: (one of MATH 200, MATH 217, MATH 226, MATH 253, MATH 263).

Important Dates:

- First day of class: Wednesday, Sept. 8
- Midterm 1: Wednesday, Oct. 13

- Midterm 2: Wednesday, Nov. 17
- Last day to withdraw without record: Monday, Sept. 20
- Last day of classes: Monday, Dec. 6
- Final exam: TBD

Course Evaluation:

- Homework: 14% (Homework will be due Tuesdays at 6pm beginning September 21 and skipping the weeks with a midterm. The lowest grade will be dropped.)
- Midterm 1: 18% (October 13, 50-minute exam to be taken in class)
- Midterm 2: 18% (November 17, 50-minute exam to be taken in class)
- Final exam: 50% (150-minute exam, date and location TBD)

Homework:

Homework will have written components as well as MATLAB, both of which should be submitted electronically. Please follow carefully the submission instructions for each assignment. Homework solutions will be posted in Canvas.

Practice homework and exams: See **this link**.

Homework and exam solutions: See **this link**.

Policies on homework and midterms:

1. No calculators or notes are allowed in the midterm and final exams.
2. Homework assignments are due 6pm at Canvas on Tuesdays. Solutions will be posted on Canvas. A selection of the problems will be graded. If you submit homework late, a 25% penalty will be applied for each day late.
3. Permission to shift the weight of your missed midterms to other exams, or to ignore missed assignments, may be granted only in the following circumstances:
    i. prior notice of a valid, documented absence on the scheduled date (e.g. out-of-town varsity athletic commitment with a letter from a coach),
    ii. notification to the instructor of absence due to a medical condition with a doctor's note, or
    iii. inability to return to campus due to Covid-19 travel restrictions, with a proof.
    Otherwise, a score of 0 will be given for the missed midterms/assignments. However, the **UBC policy on Academic Concession** ⧉ **(http://www.calendar.ubc.ca/vancouver /index.cfm?tree=3,329,0,0)** allows students to request academic concession without documentations ONCE per course. For such request please fill the **form (http://www.math.ubc.ca /Ugrad/ugradForm/Student_Declaration_Academic_Concession_MATH.pdf)**
4. The period for final exams is December 11-22, 2021 inclusive. The exact time will be announced by the University in the middle of the term. Students should not make early travel plans that overlap with the scheduled exam period.

MATLAB:

- The homework and exams contain problems using MATLAB.
- Use MATLAB Online for free or download MATLAB to your own machine. See **Getting started with MATLAB**.
- See **MATLAB Resources** for examples and tutorials.
- TAs are available for open office hours to answer MATLAB questions. See **MATLAB Resources**.

Piazza:

We will have a forum at Piazza for all sections of MATH 215/255 (see Piazza link on the sidebar). You can ask and answer questions there. It is more efficient than emailing questions to the instructors since many students will have similar questions, the answers from your classmates may be easier to understand, and the process of discussion is also beneficial. Instructors and TAs will occasionally check if there are questions unanswered.

Additional Resources:

- Math Learning Centre (MLC): Teaching Assistants are available to answer MATH215/255 related questions at the **Math Learning Center (https://www.math.ubc.ca/~MLC/)** located in LSK 301/302.
- Other textbooks and resources: textbooks such as Boyce and DiPrima (any recent edition) or Edwards and Penney.
- Math department **past exams** ☑ **(https://secure.math.ubc.ca/Ugrad/pastExams/)** .

British Columbia law requires the use of a helmet while riding a bicycle.

Statement on UBC's Policies and Resources to Support Student Success:

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious and cultural observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available **here (https://senate.ubc.ca/policies-resources-support-student-success)** .

Course Summary:

Date	Details	Due

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Tue Sep 21, 2021	📝 **Homework 1 (https://canvas.ubc.ca/courses/79789 /assignments/1028941)**	due by 6pm
Tue Sep 28, 2021	📝 **Homework 2 (https://canvas.ubc.ca/courses/79789 /assignments/1028942)**	due by 6pm
Tue Oct 5, 2021	📝 **Homework 3 (https://canvas.ubc.ca/courses/79789 /assignments/1028944)**	due by 6pm
Tue Oct 19, 2021	📝 **Homework 4 (https://canvas.ubc.ca/courses/79789 /assignments/1028945)**	due by 6pm
Tue Oct 26, 2021	📝 **Homework 5 (https://canvas.ubc.ca/courses/79789 /assignments/1028947)**	due by 6pm
Tue Nov 2, 2021	📝 **Homework 6 (https://canvas.ubc.ca/courses/79789 /assignments/1028948)**	due by 6pm
Tue Nov 9, 2021	📝 **Homework 7 (https://canvas.ubc.ca/courses/79789 /assignments/1028950)**	due by 6pm
Tue Nov 23, 2021	📝 **Homework 8 (https://canvas.ubc.ca/courses/79789 /assignments/1028953)**	due by 6pm
Tue Nov 30, 2021	📝 **Homework 9 (https://canvas.ubc.ca/courses/79789 /assignments/1028955)**	due by 6pm
Tue Dec 7, 2021	📝 **Homework 10 (https://canvas.ubc.ca/courses/79789 /assignments/1028956)**	due by 6pm