MATH307, 2019W, Term 2
Applied Linear Algebra

Instructors:

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Course Outline: Our goal is to cover the following topics: Interpolation, Finite difference approximations, Formula matrix of a chemical system, Graphs and Networks, Least squres, Fourier series, Fast Fourier Transform, JPEC compression, Power method, Recursion relations, The Anderson tight binding model, Markov chains, Google PageRank, SVD.

Undergraduate Prerequisites: One of MATH 152, MATH 221, MATH 223 and one of MATH 200, MATH 217, MATH 226, MATH 253, MATH 263.

Text: We will use an online book as the main text with the following contents. Chapter 1 : Linear Equations Chapter 2 : Subspaces, Bases, and Dimension Chapter 3 : Orthogonality Chapter 4 : Eigenvalues and Eigenvectors

Grading Policy: The course mark will be deteremined based on homeworks(10%), quizzes(10%), a midterm(30%), and a final(50%).

There will be weekly homework assianments. Please hand in your homework when the class starts on due date. The late homework will not be accepted but the lowest marked homework will be dropped in the final grade calculation. Students are encouraged to discuss homework, but should write up their homeworks individually.

If you miss an assesment (homework, quiz, or midterm) for a valid reason – see UBC Vancouver Senate's Academic Concession Policy V-135, please fill out an academic request form and bring it to your session instructor. In this case, for a missed homework, the weight will be transferred onto the remaining homework assignment. For a missed quiz, the weight will be transferred to the remaining quizzes, If you

miss the midterm, the weight will be transferred onto the final exam. Note that in accordance with UBC policy for academic concessions, this form may be used ONCE per course. On a second instance, students will be expected to provide documentation.

Any student who misses an assessment is to present to their instructor a self-declaration form (or relevant documentation if this is not the first time they miss an assessment) within 72 hours of the assessment date or their mark in the missed assesment will be 0. This policy conforms with the UBC Vancouver Senate's Academic Concession Policy V-135 and students are advised to read this policy carefully.

Exam Information:

- All exams are closed books and no calculators are allowed.
- There will be four in-class quizzes.
- The in-class midterm will be held on Friday, February 28 (Time and Location: TBA).
- The final exam date is fixed by UBC (the date/time will be announced soon). Please plan your end-of-term travel carefully according to this date.

Resources:

- Piazza: Piazza is an internet forum-type platform where you can ask class-related questions and discuss them with your classmates, TAs, and instructors. Sharing your ideas and approaches through Piazza allows you to study mathematics in a more interactive way, which could also be a rewarding experience. To sign up for Piazza, please use your UBC email address.
- Math Learning Center: The Math Learning Centre (or MLC for short) is a space for undergraduate students to study math together, with support from tutors, who are graduate and undergraduate students in the math department
  Please note that while students are encouraged to seek help with homework, the MLC is not a place to check answers or receive solutions, rather, our aim is to aid students in becoming better learners and to develop critical thinking in a mathematical setting.