Math 100,
Lecture 0

Lior Silberman

Calculus???

1 About the
course

2 Learning
advice

3 About me

# Math 100: Differential Calculus
## Lecture 0

Lior Silberman[1]

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# Galileo says

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*Philosophy is written in that great book (I mean the universe) ... but the book cannot be understood unless one first learns the language and the symbols in which it is written. This book is written in the mathematical language ... without whose help it is impossible to comprehend a single word of it; without which one wanders in vain through a dark labyrinth.*

*— Galileo Galilei, The Assayer, 1623.*

# HG Wells says

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*... the new mathematics is a sort of supplement to language, affording a means of thought about form and quantity and a means of expression, more exact, compact, and ready than ordinary language. The great body of physical science, a great deal of the essential fact of financial science, and endless social and political problems are only accessible and only thinkable to those who have had a sound training in mathematical analysis, and the time may not be very remote when it will be understood that for complete initiation as an efficient citizen ... it is as necessary to be able to compute, to think in averages and maxima and minima, as it is now to be able to read and write.*

*— HG Wells, Mankind in the Making, 1903.*

# Today's Goals

1 About the course

2 Learning methods

3 About me

# 1(a) Course Information

1. Course-wide information: on Canvas
   - Main Page (includes Syllabus – must read!)
   - WebWork – online homework & quizzes
   - Textbook
   - Written homework submission
   - Gradebook
2. Section-specific information: on my homepage
   - Announcements, advice
   - Lecture-by-lecture table

# 1(a) About the Course: Course plan

- Asymptotics, limits;
- Differentiation and the derivative;
- Taylor expansion;
- Applications of the derivative;
- Differential Equations;
- Numerical methods.

1. Large Classes
   - Two hours, once a week.
2. Small classes
   - One hour, once a week.
3. Piazza
4. Office hours

# 1(c) About the Course: grades

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Possible components of the final mark (for details see the syllabus on Canvas)

1. Engagement, possibly including
   - Diagnostic test
   - Small class participation
2. Online homework & quizzes
   - WebWork tutorial (not graded) – do as soon as possible
   - (mostly) Unlimited attempts on online homework
   - See due dates on Canavs
3. Written homework assignments
   - Typesetting is important
   - Groups same as small class
4. Midterm exams
5. Final exam [50%]

# The learning cycle

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1. Read before class: see the *lecture-by-lecture table* on the section website.
2. During class: mindful learning
3. After class: practice problems + homework

Advice

- Stay caught up
- Put in the hours (2-3 hours at home for each hour in class, spread around the week)
- Online homework: don't take the easy way out.
- Mindful practice in and out of class.

# Mindful class time

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*Abducted by an alien circus company, Professor Doyle is forced to write calculus equations in centre ring.*

(Gary Larson, "The Far Side", 15/9/1992)

- Learn *ideas* not solutions.
    - Pay attention to *cues*
    - (mostly) Ignore algebra
- *Solve worksheet problems* to trigger *thinking*.
- ***ASK QUESTIONS!!***

# Getting help

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- Math/course questions: Piazza
- Individual issues: calculus contact form
- Office hours:
    - ***Everyone is encouraged to come and ask questions***
    - After class near the classroom
    - In my office (check website for schedule)
    - At other instructors' office hours
- Math Learning Centre

# About me

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