Welcome to CSE 250A!

“I've always considered the most boring 20 minutes of the semester the time I spend reading the syllabus on the first day of class.

Students come in, potentially excited about getting started, only to end up listening to me read aloud.

I imagine them paraphrasing in their heads one of my favorite Woody Allen lines: Thanks, but I've been doing my own reading since about the first grade.”

http://chronicle.com/weekly/v53/i02/02c00201.htm

CSE 250A. Intro to AI

Probabilistic Reasoning and Decision-Making

Who uses probabilistic methods in AI and ML?

- Google - pattern matching
- Amazon - customer profiling
- Microsoft - multimedia OS
- Wall Street - time series prediction
- Game makers - enemy AI
- FBI - forensic speaker ID

Prerequisites

- Programming
  - Homeworks will involve coding.
  - Also: basic data analysis and visualization.
  - Solutions accepted in any language!
  - Java, C/C++, MATLAB, Perl, Python, etc.
  - No hand-holding with compiling, debugging.

Non-CS majors are welcome.
Prerequisites

- **Elementary probability**
  - Random variables
  - Expected values
- **Multivariable calculus**
  - Chain rule
  - Gradients and partial derivatives
  - Computing maxima and minima
  - Constrained optimization
  - Lagrange multipliers

Prerequisites

- **Linear algebra**
  - Vectors and matrices
  - Matrix multiplication, inverse, determinants
  - Systems of linear equations
- **Mathematical maturity**
  - Patience and persistence
  - Willingness to fill in gaps
  - Not for “hackers”

Readings versus lectures

- **Readings**
  - No required texts.
  - Frequent handouts (on web site).

- **Lectures**
  - Designed to be self-contained.
  - Crucial for homework assignments.
  - Emphasis on mathematical development.
  - Blackboard, not powerpoint!

Homework

- **Weekly problem sets**
  - Distributed (usually) on Mondays.
  - Due (usually) on Mondays.

- **Rules of the game**
  - One two-day extension.
  - Other late assignments: half credit.
  - Working in groups is allowed.
  - Write up your own solutions.
  - Typesetting is discouraged.
Grading

• Breakdown
  – 25% problem sets
  – 40% in-class exams
  – 35% final exam

• Academic dishonesty
  – OK to use published and online texts.
  – Not OK to plagiarize from other students.
  – Not OK to recycle old solutions.

Medical diagnosis
(http://www.norsys.com/net_library.htm)

Not in CSE 250A

• Things we won’t cover
  – Mathematical logic
  – Traditional search (A*)
  – Theorem proving
  – Genetic algorithms
  – Philosophy of AI

Medical diagnosis
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