People

Instructor

• Giuseppe Carenini (carenini@cs.ubc.ca; office ICCS 105)
Natural Language Processing, Summarization, Discourse Parsing, Preference Elicitation, Explanation, Adaptive Visualization, Intelligent Interfaces……
Office hour: my office, TBD

Teaching Assistants (office hours TBD)

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Course Essentials(1)

- **Course website:**
  
  www.cs.ubc.ca/~carenini/TEACHING/CPSC422-19/index.html
  
  - This is where most information about the course will be posted, most handouts (e.g., slides) will be distributed, etc.
  
  - **CHECK IT OFTEN!** (draft already available on Canvas)

- **Lectures:**
  
  - Cover basic notions and concepts known to be hard
  
  - I will try to **post the slides in advance** (by 3:30).
  
  - After class, I will post the same **slides inked** with the notes I have added in class.
  
  - Each lecture will end with a set of **learning goals:**
    
    *Student can*....
Course Essentials(2)

**Textbook:** Selected Chapters from

**Reference** (if you want to buy a book in AI this is the one!)
- *Artificial Intelligence: A Modern Approach*, 3\textsuperscript{rd} edition, by Russell and Norvig [book webpage on course webpage]

More readings on course webpage…..
Course Essentials(3)

• **Canvas**: discussion board
  • Use the **discussion board** for questions about assignments, material covered in lecture, etc. That way others can learn from your questions and comments!
  • Use **email** for private questions (e.g., grade inquiries or health problems).

• **Canvas**: assignments, grades, **iClicker registration**

• **AIspace**: online tools for learning Artificial Intelligence [http://aispace.org/](http://aispace.org/)
  • Under development here at UBC!
  • Already used in cpsc322
Course Elements

- Practice Exercises: 0%
- Assignments: 15%
- Research Paper Questions & Summaries: 10%
- Midterm: 30%
- Final: 45%
- Review Exam: 1% bonus
- Clickers: 3% bonus (1% participation + 2% correct answers)

If your final exam grade is \( \geq 20\% \) higher than your midterm grade:

- Midterm: 15% ↓
- Final: 60% ↑
Assignments

• There will be four assignments in total
  • They will not necessarily be weighted equally
  • They will be submitted using Canvas (as single pdf file)
  • Only the most recent submissions will be graded

• Group work (same as 322)
  • you can work with a partner (and get a small bonus !)
    ✓ Each partnership hands in a joint assignment submission with both students’ names/IDs
  • you may discuss questions with other students
  • you may not look at or copy each other's written work
  • additional details on the course website
Assignments: Late Days (same as 322)

- Hand in before class on due day (on Canvas)
- You get four late days 😊
  - to allow you the flexibility to manage unexpected issues
  - additional late days will not be granted except under truly exceptional circumstances
- A day is defined as: all or part of a 24-hour block of time beginning at the start of the class on the day an assignment is due
- Applicable to assignments only (not midterm or final)
- if you've used up all your late days (or don’t claim them), you lose 20% per day
- Assignments will not be accepted more than four days late
Missing Assignments / Midterm / Final

Hopefully **late days** will cover almost all the reasons you'll be late in submitting assignments.

- However, something more serious like an extended illness may occur 😞

- **For all such cases:** you'll need to **provide a note** from your doctor, psychiatrist, academic advisor, etc.

- **If you miss:**
  - **an assignment**, your score will be reweighted to exclude that assignment
  - **the midterm**, those grades will be shifted to the final.
  - **the final**, you'll have to write a make-up final as soon as possible.
Paper Readings

- We will read and discuss 3 (fairly recent) research papers this term
- You will be required to submit summaries of the papers along with questions about them
- The goal is to give you practice in reading research papers with a critical eye
  - Note possible weaknesses in the research or alternative approaches that might be better
  - Connect the concepts from the lectures to real-world research
  - What would be the next step?
- Late days cannot be claimed for paper readings!
How to Get Help?

• Use the course **discussion board** for questions on course material (so keep reading from it !)
  • *Please check for similar questions before posting*
  • If you answer a challenging question you may get **bonus points!** 😊

• **Go to office hours**
  • times will be finalized by next week

• Can schedule by appointment if you can document a serious conflict with the official office hours (or if other considerations apply)
Getting Help from Other Students? From the Web? (Plagiarism)

- **It is OK** to talk with your classmates about assignments; learning from each other is good.

- **But you must:**
  - Not copy from others (with or without their consent).
  - Write/present your work **completely on your own** (code questions exception).

- **If you use external source** (Web, other students, etc.) in the assignments. **Put material in quotes and cite source!**
  
  *e.g., “bla bla bla…..” [wikipedia]*
Getting Help from Other Sources? (Plagiarism)

When you are in doubt whether the line is crossed:

• Talk to me or the TA’s
• See **UBC official regulations** on what constitutes plagiarism (pointer in course Web-page)
• Ignorance of the rules will not be a sufficient excuse for breaking them

Any unjustified cases will be **severely dealt with by the Dean’s Office** (that’s the official procedure)

• My advice: better to skip an assignment than to have “**academic misconduct**” recorded on your transcript and additional penalties as serious as expulsion from the university!
Clickers - Cheating

- Using another person’s clicker
- Having someone use your clicker is considered **cheating** with the same policies applying as would be the case for turning in illicit written work.
To Summarize

• All the course logistics are described in the course Webpage
  www.cs.ubc.ca/~carenini/TEACHING/CPSC422-19/index.html

Or WebSearch: Giuseppe Carennini

(And summarized in these slides)

• Make sure you carefully read and understand them!
Your UBC-AI Background

I took 322 within the last 12 months

- A. yes
- B. no

I took Machine Learning (340) previously

- A. yes
- B. no
Agents acting in an environment

Agent

Representation & Reasoning

Actions

→ Solutions

→ Answers

Environment

world

Machine Learning 340

prior knowledge
past experiences
goals/values
observations

CPSC 422, Lecture 1
## Cpsc 322 Big Picture

### Environment

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<tr>
<th>Deterministic</th>
<th>Stochastic</th>
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<tbody>
<tr>
<td><strong>Arc Consistency</strong></td>
<td><strong>Belief Nets</strong></td>
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<td><strong>Search</strong></td>
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<td><strong>SLS</strong></td>
<td><strong>Decision Nets</strong></td>
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### Problem

- **Static**
  - Constraint Satisfaction
  - Query
- **Sequential**
  - Planning

### Representation

- Reasoning Technique

### Logics

- **STRIPS**
  - Search

### Search

- **Deterministic**
  - **Arc Consistency**
  - **Search**
  - **SLS**

- **Stochastic**
  - **Belief Nets**
  - **Var. Elimination**
  - **Decision Nets**
  - **Markov Chains**
422 big picture

Deterministic

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<th>Logics</th>
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Stochastic

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<tr>
<th>Belief Nets</th>
<th>Approx. : Gibbs</th>
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<tr>
<td>Markov Chains and HMMs</td>
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<td>Forward, Viterbi….</td>
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<td>Approx. : Particle Filtering</td>
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<th>Undirected Graphical Models</th>
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<td>Markov Networks</td>
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<td>Conditional Random Fields</td>
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<th>Markov Decision Processes</th>
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<td>Partially Observable MDP</td>
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<td>Value Iteration</td>
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<td>Approx. Inference</td>
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Applications of AI

StarAI (statistical relational AI)

Hybrid: Det + Sto

Prob CFG

Prob Relational Models

Markov Logics

Representation

Reasoning Technique
“How is this this course compared to 322?”

- More challenging material (obviously)
- More **mathematical**
  - Lots of probabilistic operations (i.e. sums of products)
  - Important to be able to look at an expression and be able to figure out “what’s going on”
- More **programming**
  - Most (if not all) assignments will have a programming component to them
  - Usually you may use the language(s) of your choice
Core Values in 322

- **Conceptual understanding** over Memorization
- Sometimes things will be left **underspecified**
  - Eg. I may ask you to solve a problem without telling you the precise steps to follow or what formats to use
  - This is usually **intentional**
- Best answers are:
  - **Correct**
  - **Easy to read**
  - As **short** as possible while including **important** information
CPSC 322 Review “Exam”

https://forms.gle/SpQwrXfonTZrVf4P7

Based on CPSC 322 material

- Logic
- Uncertainty
- Decision Theory

Review material (e.g., 322 slides from 2017):
• Review CPSC 322 material
• Read textbook 9.4
• Read textbook 9.5
  • 9.5.1 Value of a Policy