People, books, web

- **People:**
  - Jesse Hoey (Instructor)
  - Frederic Bouchard (TA)
  - Amir Farrag (TA)
  - Eshan Ganjidoost (TA)
  - Camilo Andres Munoz Bravo (TA)
  - Atrisha Sarkar (TA)

- **Lectures:**
  - Section 001: M/W 11:30am-12:50pm in E2-1736
  - Section 002: M/W 8:30am-9:50am in MC-1056

- **Office hours:** TBA

- **Office hours (TA):** near assignment due dates
Assignments, etc

- **CS486 (undergrad students)**
  - 4 Assignments (40%: 10% each)
  - 1 midterm exam (15%) (Feb 8th, 630pm in M3-1006)
  - 1 final exam (45%) (must pass to pass course)
  - optional project (5% bonus, proposal at midterm)

- **CS686 (grad students)**
  - 4 Assignments (25%: 6.25% each)
  - 1 midterm exam (10%) (Feb 8th, 630pm in M3-1006)
  - 1 final exam (35%)
  - 1 project report (30%, proposal due at midterm)

- Students wishing to write a project (and all CS686 students) **must** submit a project proposal.
Textbooks, websites

- **Textbook**: David Poole and Alan Mackworth
  *Artificial Intelligence: Foundations of Computational Agents.*
  available online at artint.info
- **Secondary textbooks**:
  - Russell and Norvig
    *Artificial Intelligence* aima.cs.berkeley.edu/
  - Ian Goodfellow and Yoshua Bengio and Aaron Courville
    *Deep Learning* - deeplearningbook.org/
- **Website**: www.student.cs.uwaterloo.ca/~cs486
- **Discussion forum and email**: Piazza
  piazza.com/uwaterloo.ca/winter2019/cs486686/home
- **Assignments handed in and returned, grades, on LEARN**
Volunteer Note Taker Required

AccessAbility Services
Volunteer Notetaker Required

Interested? Complete an online application using your WATIAM:

https://york.accessiblelearning.com/UWaterloo/

More information:

Website: https://uwaterloo.ca/accessability-services/current-students/notetaking-services

Email: notetaking@uwaterloo.ca

Phone: 519-888-4567, ext. 35082
Current Research In A.I.

- **Organizations:**
  - Waterloo AI institute [waterloo.ai](http://waterloo.ai)
  - Assoc. for the Advancement of A.I. (AAAI) [aaai.org](http://aaai.org)
  - European Association for A.I. (EurAI) [eurai.org](http://eurai.org)
  - Canadian A.I. Association [caiac.ca](http://caiac.ca)
  - Intl. Machine Learning Society [machinelearning.org](http://machinelearning.org)
  - Association for Affective Computing (AAAC) [emotion-research.net](http://emotion-research.net)

- **Journals**
  - Artificial Intelligence [journals.elsevier.com/artificial-intelligence/](http://journals.elsevier.com/artificial-intelligence/)
  - Journal of AI Research [jair.org](http://jair.org)
  - Journal of Machine Learning Research [jmlr.org](http://jmlr.org)

- **Conferences**
  - International Joint Conferences on A.I. [ijcai-18.org](http://ijcai-18.org)
  - AAAI 2018 [aaai.org/Conferences/AAAI-18](http://aaai.org/Conferences/AAAI-18)
  - Neural Information Processing Systems [nips.cc](http://nips.cc)
  - International Conf. on Machine Learning [icml.cc](http://icml.cc)
Overview of the Course

Lectures:

- Introduction
- Agents and AI
- Representation and Reasoning
  - States and Searching
  - Features and Constraints (CSPs)
  - Logical inference
  - Uncertainty
- Learning and Planning
  - Supervised learning
  - Unsupervised learning
  - Reinforcement learning
  - Machine Learning
  - Neural Networks and Deep Learning
  - Planning (with certainty and uncertainty)
- Topics (time permitting)
  - Affective (emotional) computing
  - Robotics
  - Natural Language Processing
What is Artificial Intelligence (AI)?
What is Artificial Intelligence (AI)?

The synthesis and analysis of computational agents that act intelligently.

An agent acts *intelligently* when

- what it does is appropriate for its circumstances and its goals, taking into account the short-term and long-term consequences of its actions
- it is flexible to changing environments and changing goals
- it learns from experience
- it makes appropriate choices given its perceptual and computational limitations
Next:

- What is AI? (Poole & Mackworth chapter 1.2-1.10, 2.1-2.3)
- Search (Poole & Mackworth chapter 3)