

## 287H: Algorithmic Human-Robot Interaction

Anca Shagan      anca@berkeley.edu

CSI Cassidy Laidlaw      cassidy-laidlaw@--

web: <https://people.berkeley.edu/>

~anca/4421.html

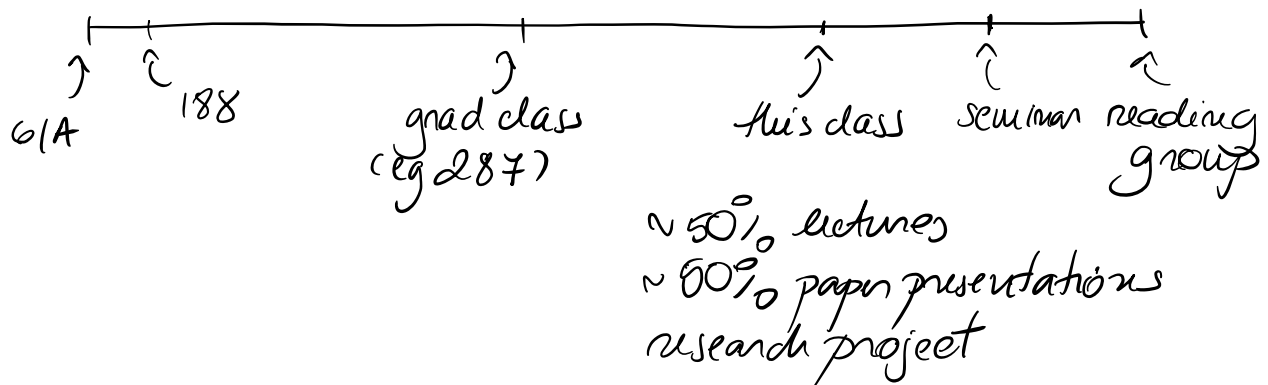
↳ contains policies, tentative schedule, dates, expectations, grading, learning objectives

new area of research!

↳ NO BOOK; lecture notes + papers

↳ more problems than solutions

(hopefully you solve some in your research)

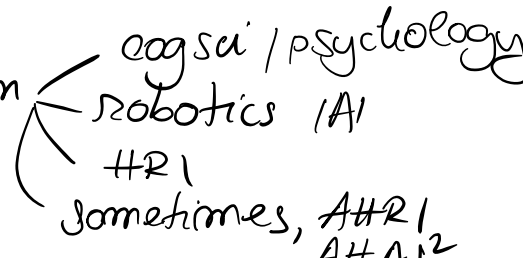


## Content

- background: how to optimize cost / reward controls (traj opt) + AI (MDPs++) view
  - ↳ including manually defined costs for interaction
- what to optimize - learning cost / reward
  - ↳ IRL, imitation, psych, interfaces
- collaboration / coordination
  - ↳ intent inference and expression
  - ↳ generating behavior to avoid / assist planning IRL

## [o experiment design]

- AHR1 Gauthier : → game-theoretic view
  - ↳ better human modeling

lectures + papers in 

- cogsci / psychology
- robotics / AI
- HRI
- sometimes, AHR1, AHA12

# Logistics

check website often for schedule updates

Grading: {

- 30% presentations
- 30% final project < <sup>research</sup> lit. survey
- 15% quizzes + - ✓
- 15% homework (adding more this year)
- 10% participation

Project:

Research project:

- needs both algorithmic and human component / aspect
- physical robot OR simulation OR virtual AI
- paper-worthy idea
- preliminary results ok

literature survey:

- ~ 50-70 relevant papers
- organize the area / topic
  - ↳ table w. different axes
  - ↳ analyze / explain
  - ↳ NOT a laundry list

Dates :

- April 1 : proposal (1 page)  
research: motivate the problem,  
describe what's out there is missing,  
state a clear key insight
- survey : identify topic,  
describe inclusion criteria  
5-10 initial papers  
preliminary axes, organization
- April 26, 27 : final presentation
- May 9 : final report