March 5, 2026

Wheelchair Fabrication in Developing Countries

ENGR110/210
Perspectives in Assistive Technology



Ralf Hotchkiss

Whirlwind Wheelchair International



Haas Center for Public Service

Cardinal Course student survey

bit.ly/cardcoursesurvey

Stanford University

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Questions, Comments, Suggestions, or Concerns?





Please notify me of your comments, suggestions, and concerns so I can explain / address / correct them before the end-of-term course evaluation.

Week 10 Class Sessions



- Tue, Mar 10th
  End-of-Term Student Team Project Presentations
  Bring your laptop for scoring presentations



- Thu, Mar 12th
  Student Project Demonstrations + Burritos
  Bring all your prototypes

Reminder - Work with Extreme Diligence

- Time is your most precious resource
- 5 days until End-of-term Team Project Presentations
- Prepare for end-of-term presentation - Tuesday, Mar 10th
- Enjoy end-of-term project demonstration - Thursday, Mar 12th





Week 9



- It's officially project crunch time
- Brainstorm, Select, Prototype, Test, Analyze, Repeat, Report
- Contingency plan
- **Discontinue** submitting progress reports, ok to ask for advice







Week 9 Project Activities





- Finalize fabrication, perform user testing
- Focus on Tuesday's team presentation
- Project demonstrations
  bring all prototypes next Thursday











Final Presentations - Tue, Mar 10th

- Cover your entire quarter's effort
- Tell a complete story, but focus on what you have achieved since the mid-term
- Emphasize how your team addressed the problem
- **8 minutes**, no demos, no prototypes, no audience questions
- Show your prototype in your slides - point to features
- **Email Google Docs url to Dave by noon Tuesday**
- Embed one short video of prototype in use
- Slide text issues - font size, text contrast with background
- Be prepared to evaluate other teams' presentations - bring your laptop
- **Dress professionally**





Dress Professionally

- No t-shirts, sweatshirts, hoodies
- No flip-flops, sandals
- No shorts, jeans, holes in pants
- No baseball or stocking caps



No Jacket Required



Mark Zuckerberg

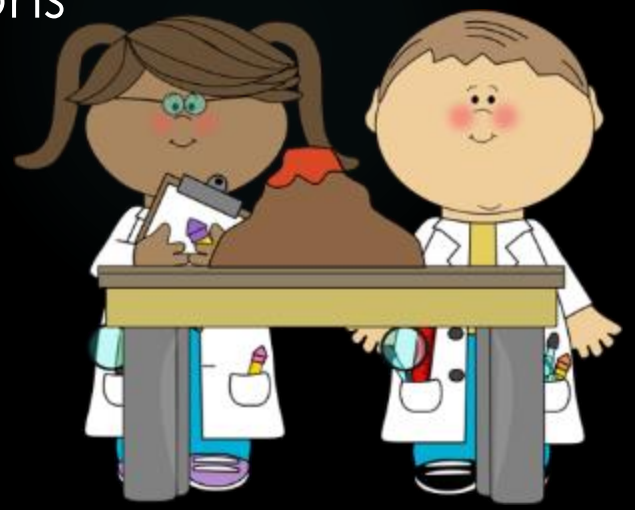
"Each item of clothing makes a statement about who you are"

"Dress for the grade you want"

Project Demonstrations - Thursday



- Bring all prototypes to class
- Project demonstrations outside on patio
- No posters or handouts - informal "trade show" presentations
- Demonstrate prototype's functionality
- Make sure Tori and I check it out
- Check out other teams' projects
- Enjoy burritos & drinks
- Community members will attend
- Invite project suggestors, users, friends who contributed to your project's success
- Bring laptop to show additional videos and images of your process (no power outside)



Project Considerations

- Your prototype should be functional, but not necessarily ready for market
- Contingency plans if things don't work out
- Add a team or Stanford logo
- Never apologize for what you did or what you were not able to achieve
- Mention future plans
- Remember "Everything is a prototype"





Order of Presentation on Tuesday

Order	Team Name	Project Name
1	K9 Consortium	Treats for Nathan
2	Subway Surfers	Obstacle Detector 1
3	All Play!	Playground Attractions 2
4	One for All	Playground Attractions 1
5	Pass, Set, Kapow!	Laptray Artwork Easel
6	Casa Zapato!	Footshell Project
7	Curb Scouts	Obstacle Detector 2

Food & Drink Signup for Thursday



For everyone:

- Food & Drink Signup



End-of-Term Celebration
Food and Drink Signup
Thursday, March 12th

Choose one burrito and one drink item

Burrito

Veggie	Chicken	Beef

Drink

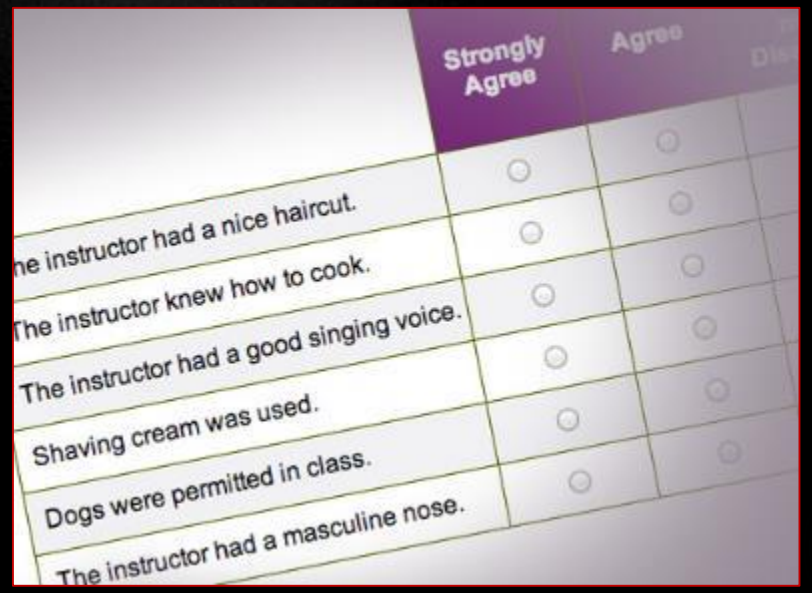
Regular Coke	Diet Coke	Water

Course Evaluations



1. Cardinal Course Student Survey (Done Today)
2. Registrar's evaluation - online (on your own)







End-of-term Report



- Cover your entire quarter's work
- Include material from mid-term report
- Consider mid-term report mark-ups
- Due **Monday, March 16th**







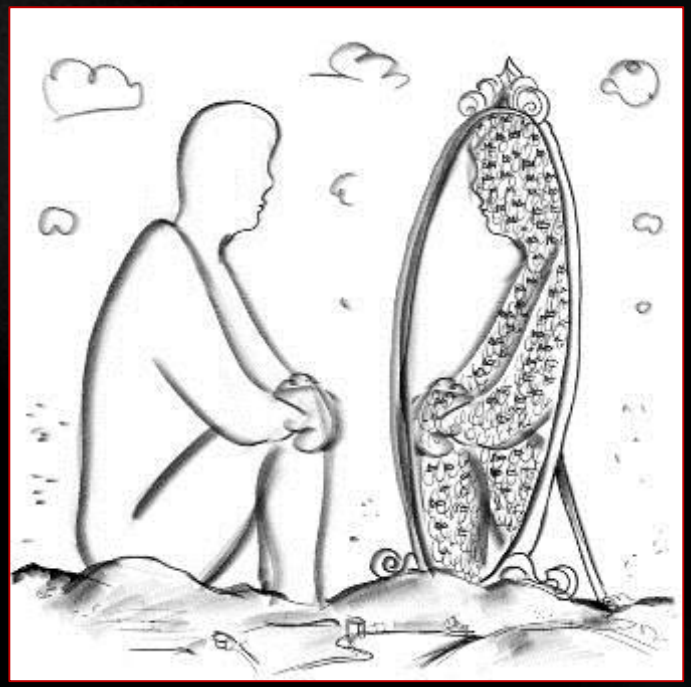


Individual Reflection

- How you felt about your course, project, user, team experience
- Due **Monday, March 16th**

We do not learn from experience... we learn from reflecting on experience.

- John Dewey





Famous TV Characters with Disabilities



Big Bang Theory

Famous TV Characters with Disabilities - Raj







Raj - Social anxiety disorder, selective mutism, and fear of spiders (arachnophobia)

Famous TV Characters with Disabilities - Sheldon









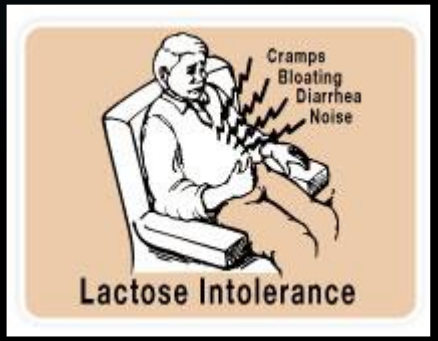
Marilu Henner

Sheldon - Eidetic memory, afraid of dogs (cynophobia) and birds (ornithophobia), mild OCD, "a bit of a germaphobe" (mysophobia), autistic behaviors, but not crazy (his mother had him tested), tardive dyskinesia symptoms

Famous TV Characters with Disabilities - Leonard







Leonard - Asthmatic and lactose intolerance

Famous TV Characters with Disabilities - Howard

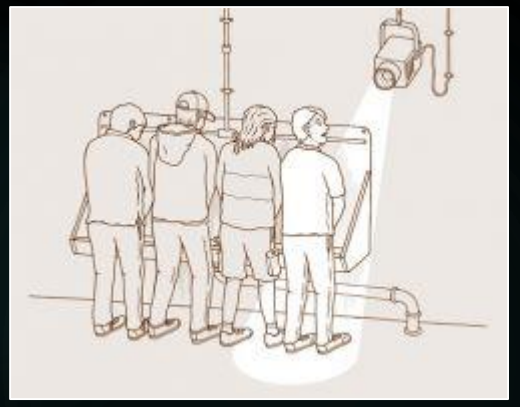






Howard - Severe peanut allergy and fear of going into space (astrophobia)

Famous TV Characters with Disabilities - Penny





Penny - No last name!, shy bladder (paruresis)

Famous TV Characters with Disabilities - Barry



Elmer Fudd





Barbara Walters

Barry Kripke - Speech impediment (rhotacism)

Famous TV Characters with Disabilities - Mrs Wolowitz



Mrs Wolowitz – extreme obesity, neck size of 43, facial hair, gout

Famous TV Characters with Disabilities - Amy





Amy Farrah Fowler - night terrors

Famous TV Characters with Disabilities - Stuart





Stuart Bloom - night blindness (nyctalopia)

Today

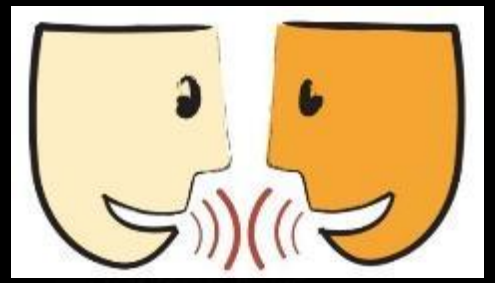


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Break Activities



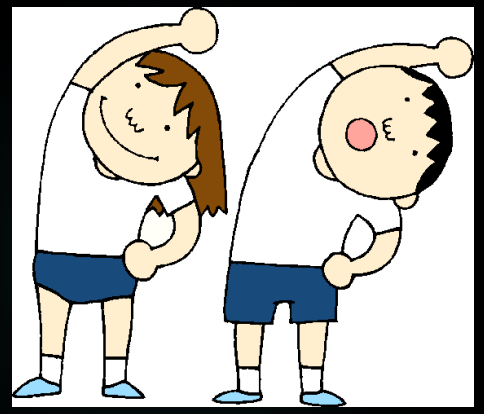




- Stand up and stretch
- Take a bio-break
- Text message
- Web-surf
- Respond to email
- Talk with classmates
- Reflect on what was presented in class









Short Break



