DEA 4700 - Environmental Analysis 1: 
Applied Ergonomics Methods 
Course Overview

- DEA 4700 syllabus (DEA6700 syllabus) – http://ergo.human.cornell.edu
- DEA4700 - 2 mini-projects: 
  - Physical ergonomics – TBA
  - Cognitive ergonomics – TBA

Ergonomics/Human Factors
- Ergonomics (European) and Human Factors (US) basically are the same disciplines.
- Ergonomics is the ‘science of work’, from ‘ergon’ or ‘ergos’ (Greek - work) and ‘nomos’ or ‘nomikos’ (Greek - laws).
- Ergonomics is multidisciplinary.
- Ergonomics uses multiple methods.
- Ergonomics focuses on USERS.
- If it doesn’t affect design in some way, it isn’t ergonomics!

Ergonomics - Physical design
User-technology physical interface design
- Who are the users?
- How does the technology fit different user dimensions?
- How does the technology fit user anatomy?
- How does the technology fit user strength?
- How does the technology accommodate different abilities?
- How safe is the technology (health, comfort, performance)?
- How do users interact with technology?

Ergonomics - Cognitive design
User-technology cognitive interface design
- How do users expect the technology to work?
- How is information displayed?
- How well are stereotypical expectations met?
- How complex is the interface?
- How much training is required?
What user knowledge assumptions are made?

Ergonomics - Layout
Workplace design and workspace layout
- Are the work items optimally positioned in terms of comfort, convenience, layout and frequency of use?
- How well does the layout support work flow?
- Who can be accommodated by the layout?
- How flexible is the layout when work content changes?

Ergonomics - Ambient conditions
- Physical environment conditions at work
- What are the prevailing climate conditions that could affect performance (thermal, luminous, acoustic, vibration, air quality, electromagnetic fields)?
- What are the exposures?
- What acclimation can occur?
- What protection is required?

Ergonomics - Work content
- Job design, selection and training
- What are the work patterns (shifts etc.)
- What are the work tasks?
- What are the required skills?
  - Physical
  - Cognitive
  - Social
- What are the training needs?
- What can be simulated?

Macroergonomics
Organizational design and management
- How should users be organized?
- How should teams work?
- What motivates users?
- How should functions be allocated?
- How should teams be led?
- What are the opportunities for participatory ergonomics?

Ergonomics - Systems thinking
- User – Interface – Technology components