Smarter Curriculums: Bridging the pedagogical gap between engineering sciences and the liberal arts

Kevin Buchan
Molly Bigness
Agenda

- Analyze how institutions and educators prepare students for the workforce
- Discuss what companies desire from employees
- Conclusions – can we do better?
Why students should care

- When I’m looking to hire an engineer at IBM, I look for good examples of hands-on experience that lead me to believe they'd be successful doing a job at IBM; stories about themselves that show good teamwork and leadership; they need to be good communicators - people who can translate their technical expertise into language others can understand. Beyond that, I look for hires that can facilitate innovation that matters for our company and for the world.
What companies want, and what our world needs

- **Innovation** – new ideas that add value
- Can’t teach innovation – too hard to quantify
  - Can train students to overcome common barriers
- **Foster innovation** – a more well-rounded perspective
Common Barriers to Innovation

- *Education* – beyond fundamentals
- *Generational / age gap* – different levels of experience
- *Communication* – encourage students to attend project presentations from other majors
- *Fear* – redefine success and failure when it comes to innovative projects
- *Bottom up thinking* – encourage “big picture” perspective
Fostering Innovation

- Traditions – another barrier to innovation

- [A liberal arts education] makes [students] more reflective about their beliefs and choices, more self-conscious and critical of their presuppositions and motivations, more creative in their problem-solving, more perceptive of the world around them, and more able to inform themselves about the issues that arise in their lives, personally, professionally, and socially.

-The Office of Admissions at Harvard College
Fostering Innovation

- **Collaboration** – another barrier to innovation
  - Not just working on a team
    - Cross-departmental projects

- **Lack of time for “fun” projects** – more time to explore your interests academically
  - Encourage more electives
Conclusions

- Companies want innovative employees
- We can better prepare our students to create new ideas that add value to the world
  - Expanding curriculums
  - Shadowing innovators