

Cyber-Social Learning Systems: Higher Education

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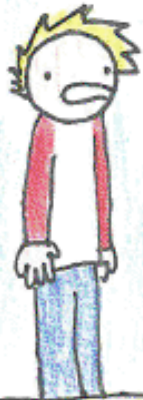


Learning Systems

“A system with the capacity to continuously study and improve itself”

How are we doing as a learning system in higher education?

What is the worst part of school in your opinion?



Well...

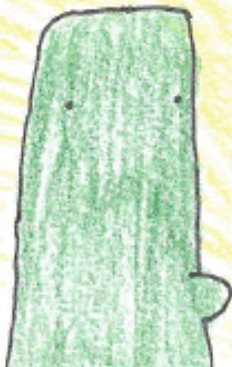
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hmm...



Probably the learning part.

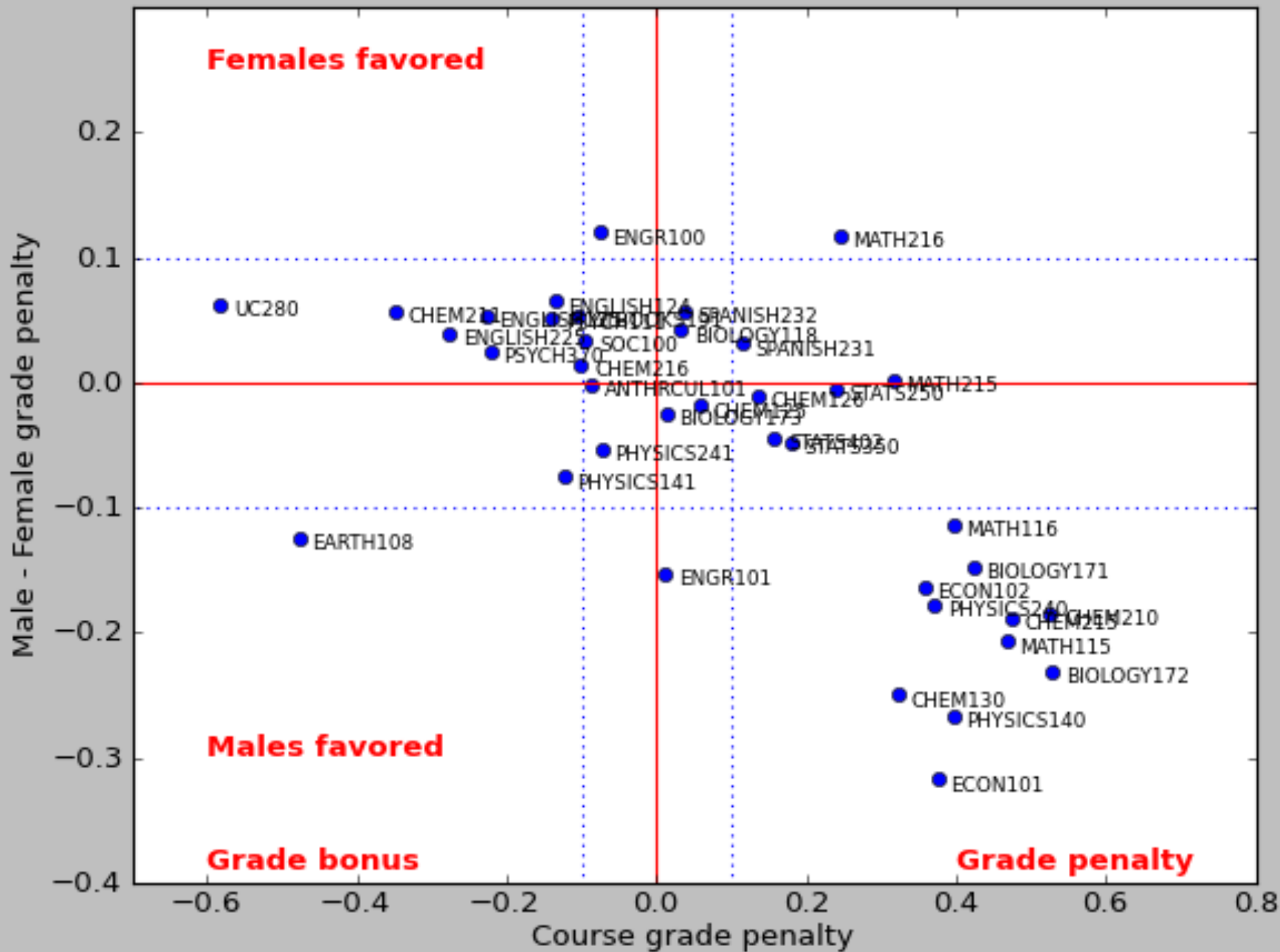
The American dream: Getting an education without being educated.



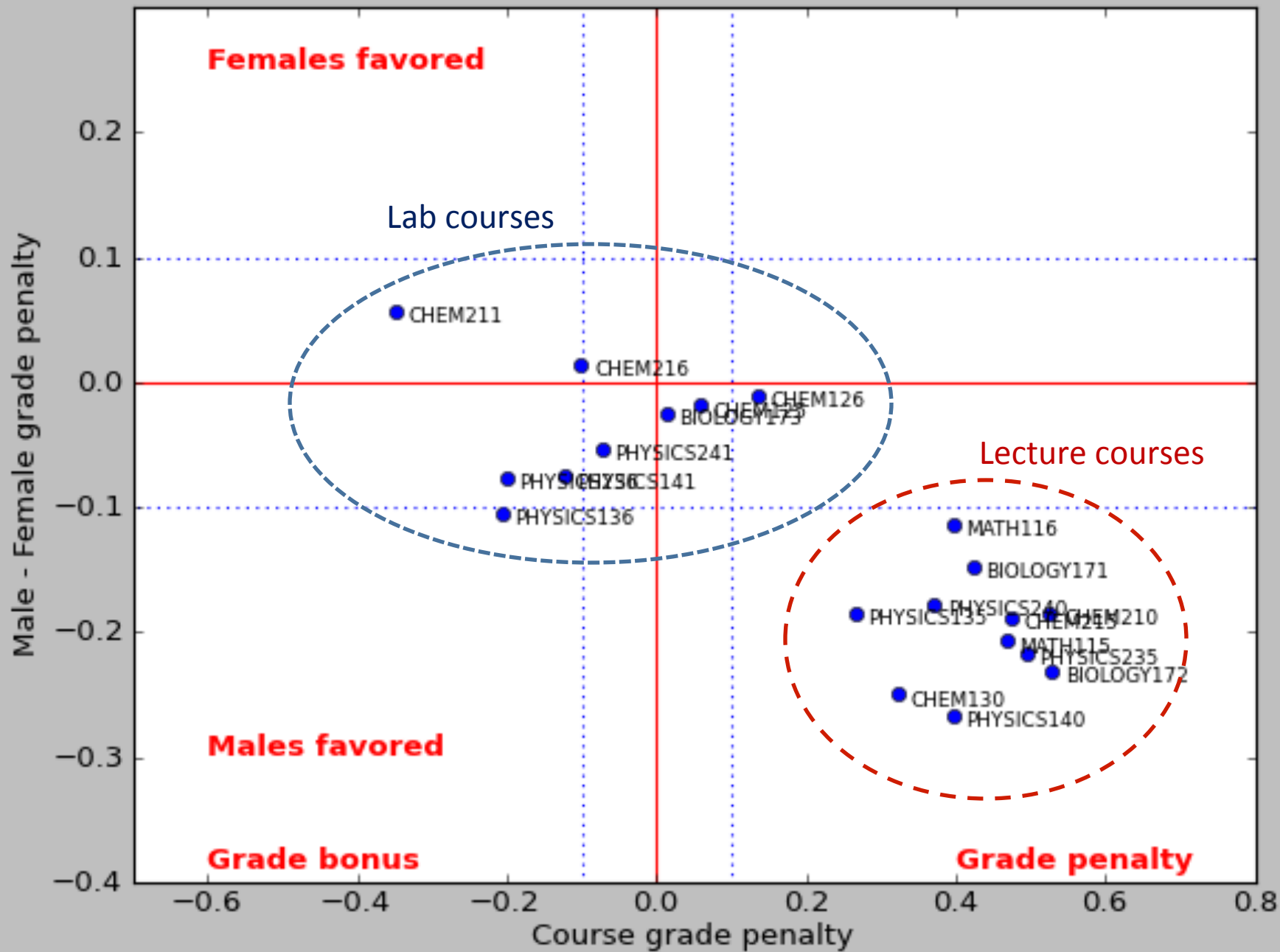
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What are existing performance metrics for higher ed institutions?

Data from 2000 – 2012 for all 'giant' classes, with average enrollments over 400



Data from 2000 – 2012 for all large introductory STEM lecture and lab courses



What's the Message to Students?

You're not as smart as you thought...

Guys are better at...

You can't major in...

Fact: Best predictor of graduation GPA is
freshman fall GPA.

We have been doing research on educational data for a long time

What's changed is the creation of new data sources that are invisible to the learner

Opportunity

Cyber: Increasing Digital Nature of
Learning Environments
(“Data Footprint”)

Academic Analytics  Learning Analytics

Learning Analytics is...

the measurement, collection, analysis and reporting of data about learners and their contexts for purposes of understanding and optimizing learning and the environments in which learning occurs



Who Benefits from LA?

- **Administrators** can find out what is happening and explore how well institutional goals are being achieved
- **Faculty** can study the efficacy of their teaching and explore what approaches are most effective for students
- **Students** can learn from the experience of their peers to improve their own learning

Where Are We Going?

- Leverage “big data” for education
- Use institutional data to innovate teaching & learning
- Assume risks of exposing what does and doesn't work in higher ed (and for whom)
- Move beyond grades & credit hours (?)
- Create shared datasets that allow cross-institutional analyses

Challenges: Ethics and Privacy

Socio/Technical

- Concerns about the increased collection, use, and sharing of sensitive student information
- Perception of Big Brother & commercialization of student data

see inBloom failure...

Challenges: Risk of Big Data

Continued reliance on testing and other norms-based metrics & practices for making decision about action from data

“Don’t value what we measure, measure what we value”

Creating Data-Driven Academic Pathways to Success

- Build models of student behavior to diagnose students' academic challenges -> effective interventions before failure
- Design personalized learning trajectories that address the diversity of students & their preparation for learning at specific types of higher ed institutions
- Develop new models for effective instruction and fair assessment
- Create interfaces for advisors, faculty & students to make data visible, understandable, and valuable

Example: MOOCs

- HE responds = Rapid adaptation to evolving conditions
- Created perceived market threat to traditional place-based residential education
- ? Radical improvements in socio-technical system?

Example: Personalized Learning

How can we optimize learning to meet students' needs, goals, and motivations using learning technologies *and* changing pedagogical practices?

Personalized Learning: Stats 250

Brenda Gunderson

Class of over 2,000 students, required for many (non-math) majors

Employs numerous technologies
Radical revision of pedagogy & practice

See:

<https://www.youtube.com/watch?v=B6KbD58cWGM> (start at minute 11:45)

What do We Need?

“A new culture of learning needs to leverage social & technical infrastructures in new ways.” (JSB)

Questions?

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