



Role and Future of Computing at Universities: Building Capacity: Big+Wide+Deep

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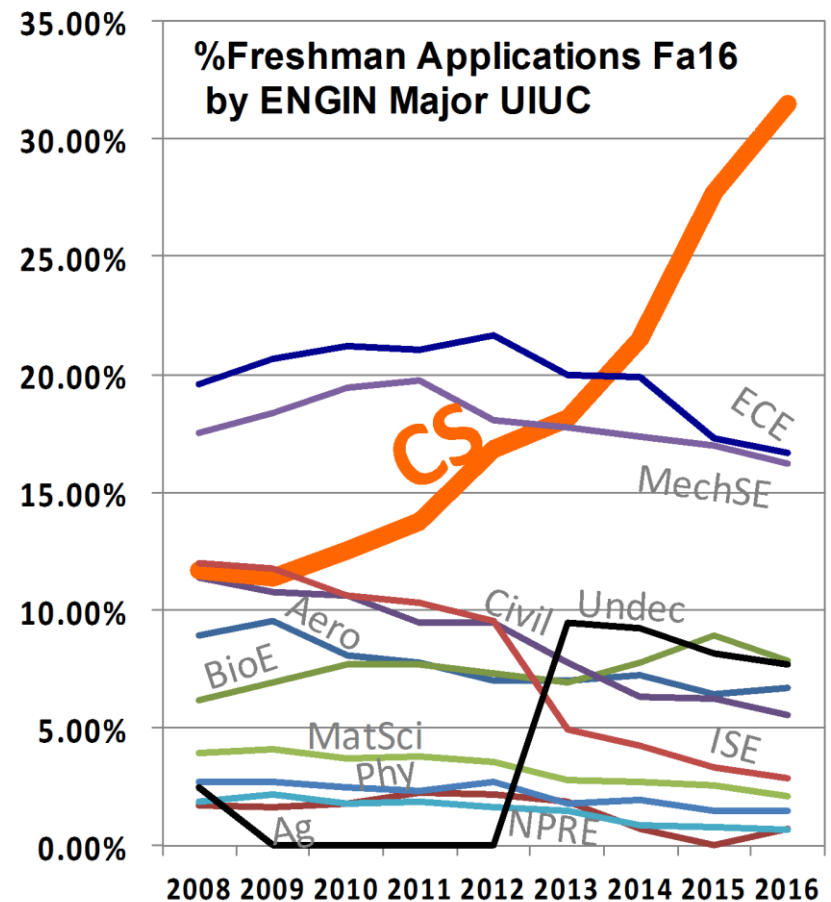
ILLINOIS

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Yes, They Are Coming In Front Door...



■ At Illinois, this is the CS major in Engineering



“Sub Optimal” Institutional Responses



Can't ignore it.

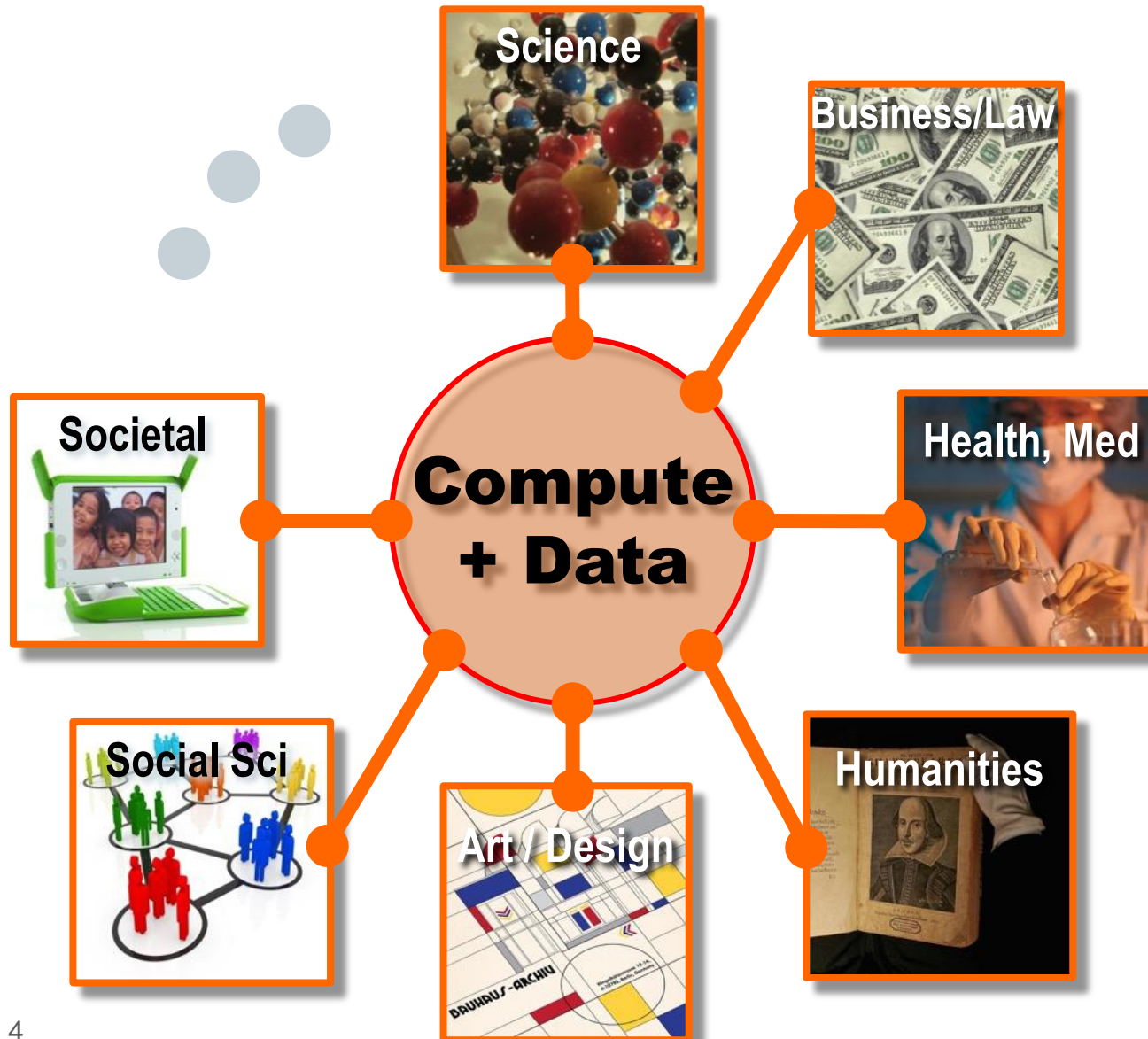
Can't hope it just goes away.

Can't just say “No, sorry....”

Must *build capacity* to respond aggressively.



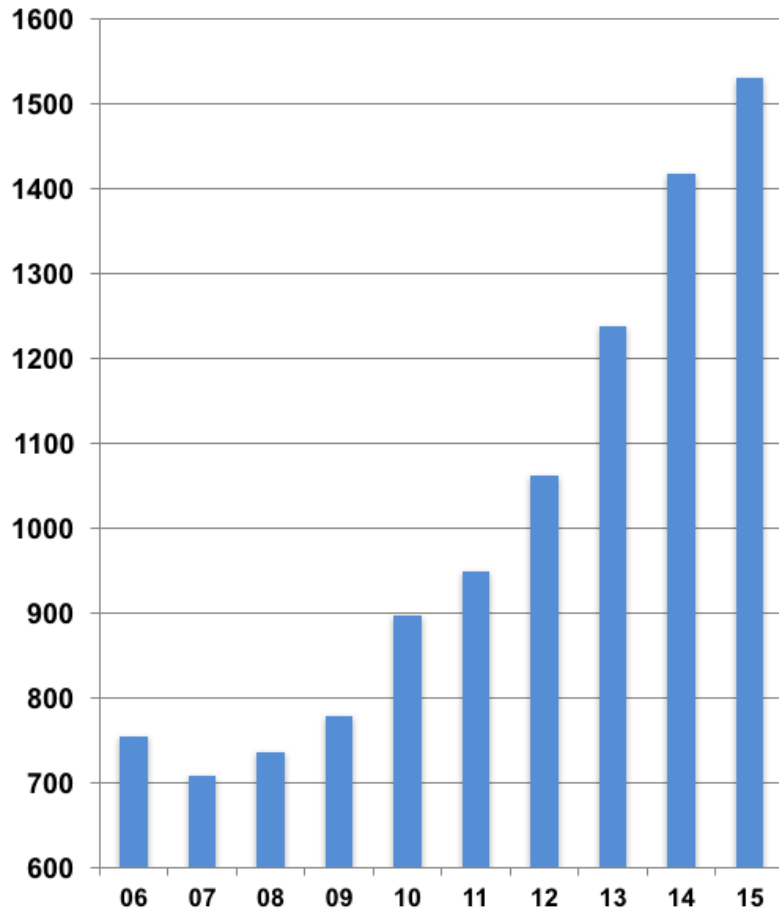
Better Response: Become a **Hub** For..



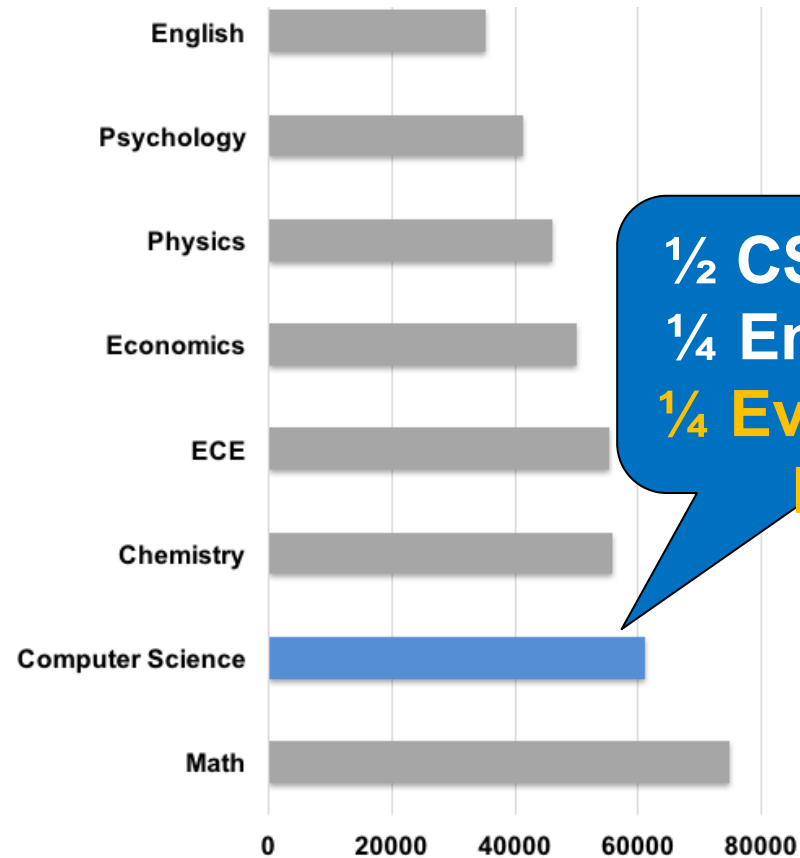
Response the First: Go BIG



More Illinois CS Majors



More Illinois CS Classes & Seats for EVERYBODY



$\frac{1}{2}$ CS Majors
 $\frac{1}{4}$ Engineers
 $\frac{1}{4}$ Everybody
Else

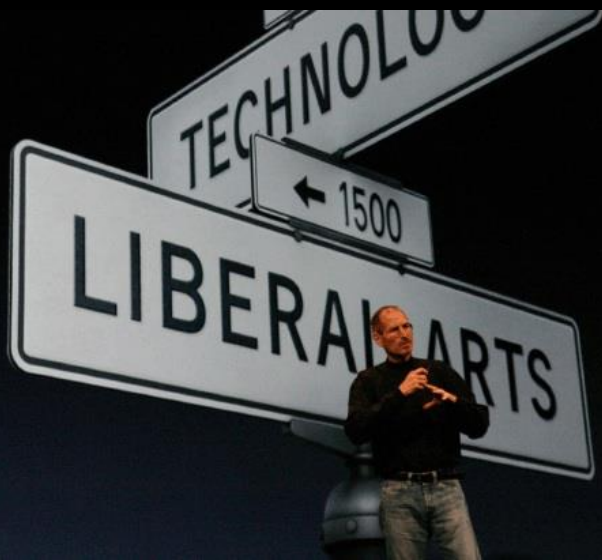
Instructional Units '14-15

Response the Second: Go **WIDE**



**“It’s technology married with
liberal arts, married with the
humanities, that yields the results
that make our heart sing.”**

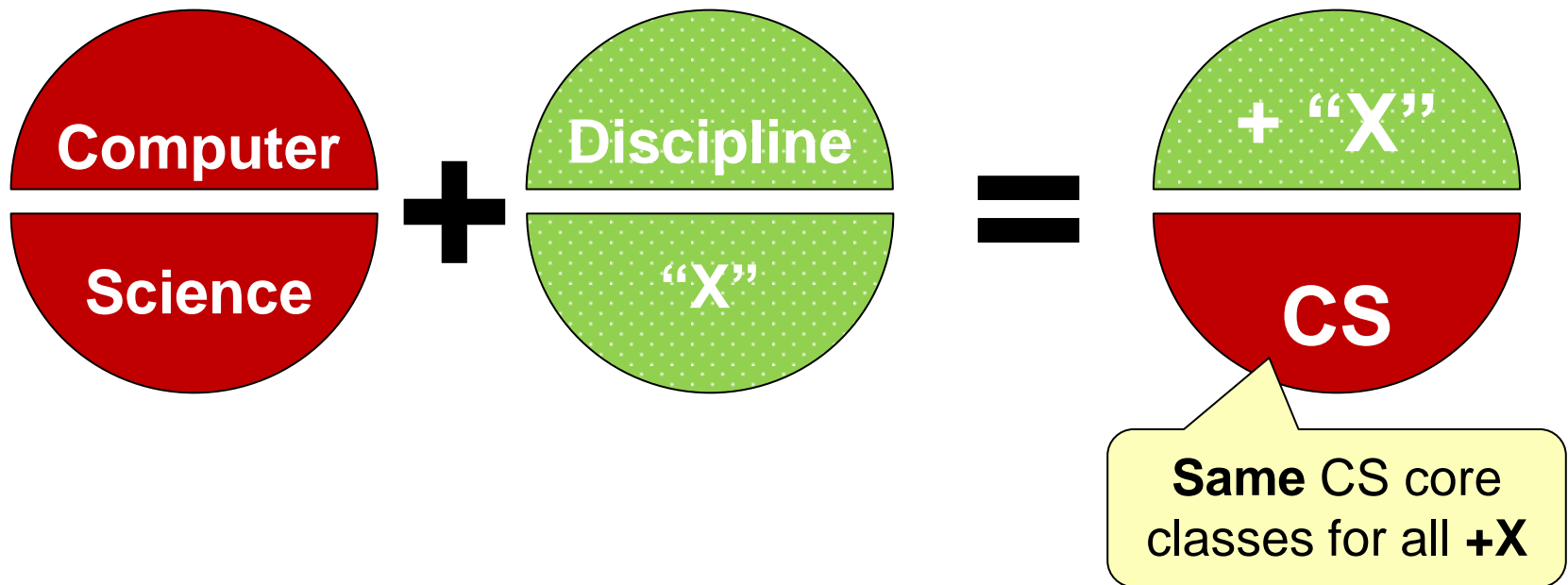
Steve Jobs



Illinois CS+X Degrees



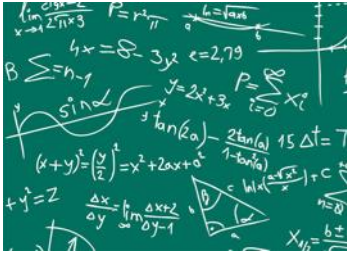
- They are *not*: Minor in CS/X. Dual degree.
- They are: **CS(1/2) + X(1/2) = Bachelors Degree in X**



Illinois CS+X: Portfolio



CS+Math



CS+Statistics



Legacy degrees, decades old

CS+Anthropology

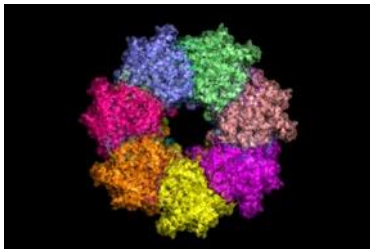


CS+Astronomy

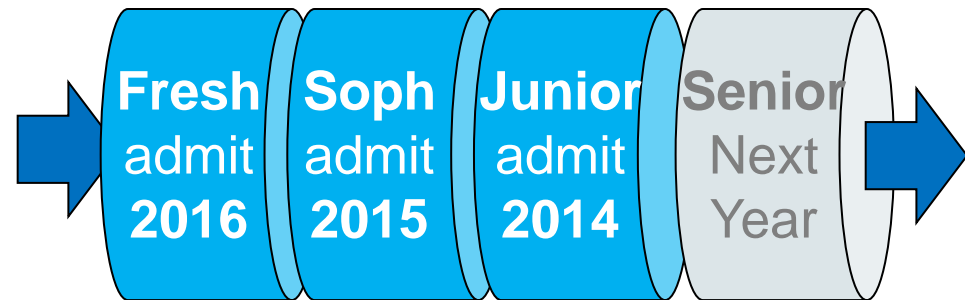


**Design started in 2010,
approved 2013, admits 2014**

CS+Chemistry



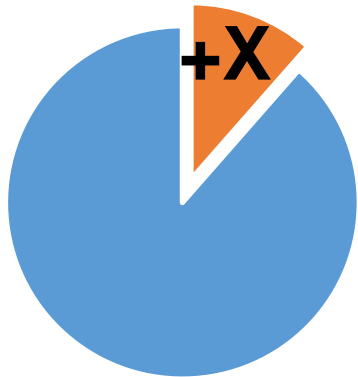
CS+Linguistics



Illinois CS+X: Traction

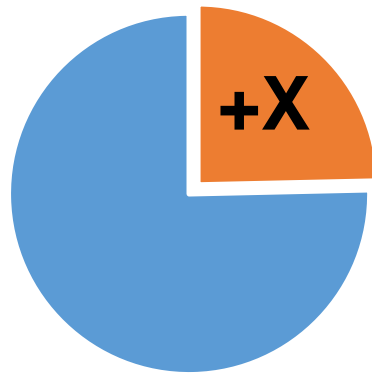


Anthropology



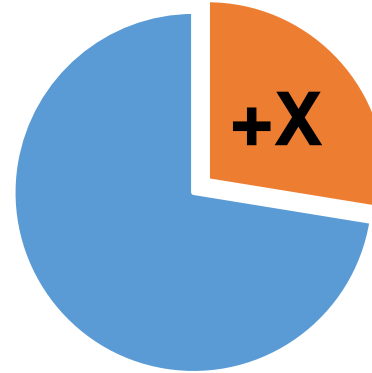
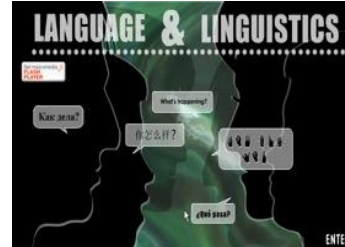
~11%
Of students

Astronomy



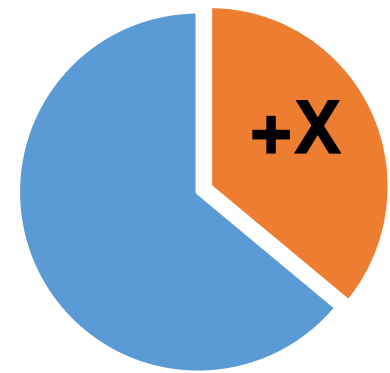
~25%
Of students

Linguistics



~28%
Of students

Statistics



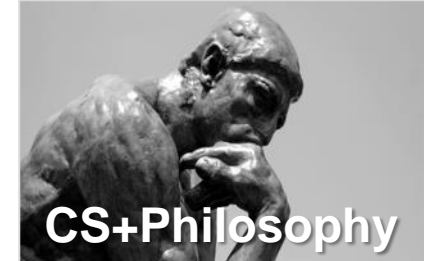
~36%
Of students

Illinois CS+X: Rising Popularity

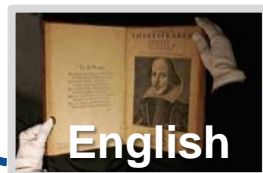


- Dramatic surge of interest “to be next X”
- Likely pivoting toward more {CS+DataSci}+X

Next 3 X's



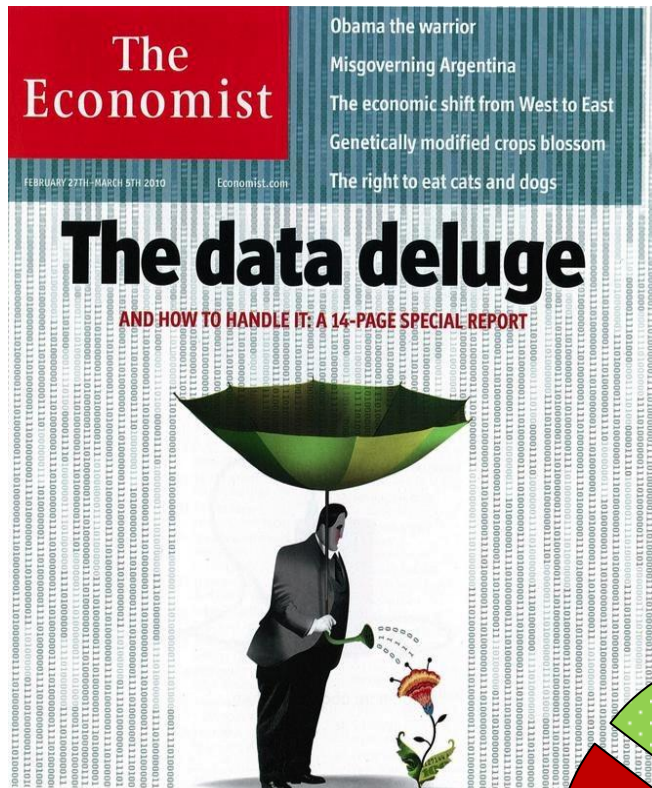
In discussion



Illinois CS+X: Why Go WIDE?



Positive pressure



Negative pressure

The Morbid Fascination With the Death of the Humanities

Why professors, librarians, and politicians are shunning liberal arts in the name of STEM



The Atlantic

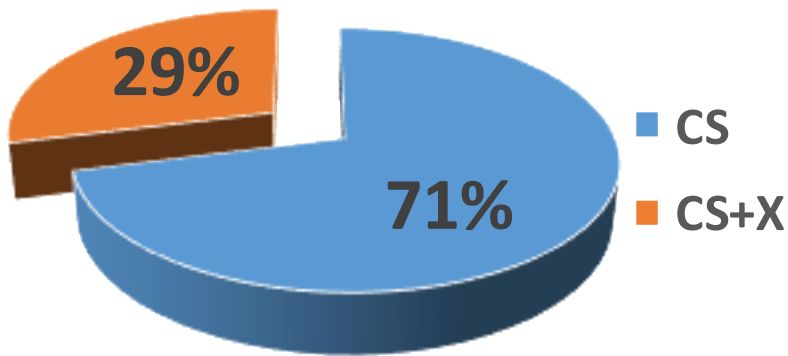
<http://www.theatlantic.com/education/archive/2014/06/the-morbid-fascination-with-the-death-of-the-humanities/372216/>



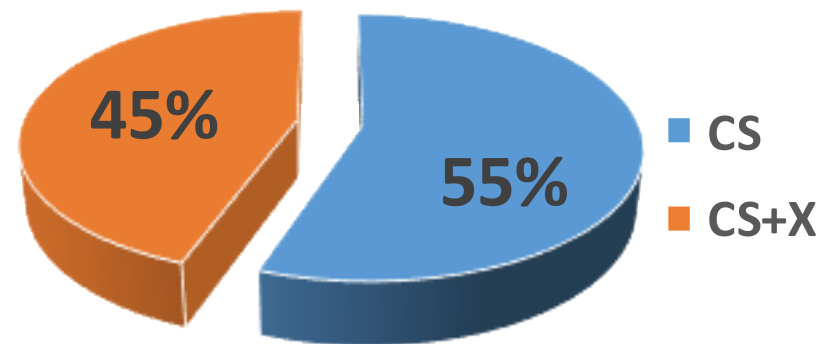
Illinois CS+X: Today's Numbers



- CS+X approaching **30% of all CS**
- CS+X approaching **50% of admitted Freshman '16 class**
- CS+X new degrees now **28% female**

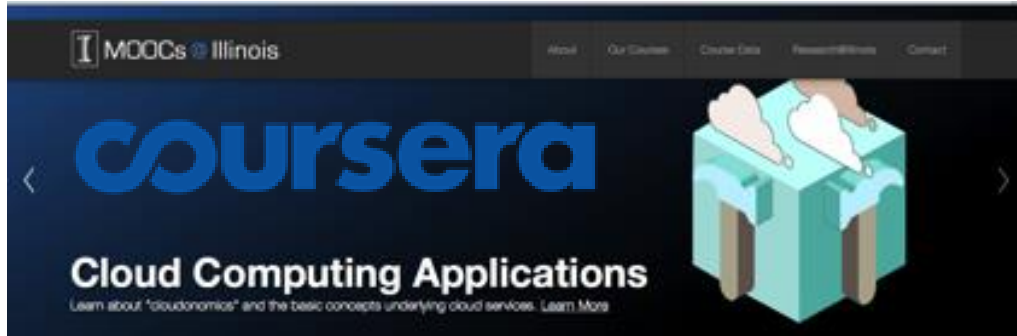


Total CS Enrollment



Freshman 2016 Enrollment

Response the Third: Go DEEP



- **Deep = Distant.** Access for folks **not local to campus**
 - **Coursera** is one of the large **MOOC** platform providers
 - Illinois is currently Coursera's largest academic partner
 - **Computer Science MOOCs** are a huge, strategic part of partnership



903,370 registered
in CS@Illinois MOOCs
(**2.6M** total at UIUC)

Computing Enrollments: Build Capacity



Go WIDE:



+X

+X

+X

+X

+X

+X

+X

+X

+X

+X

+X

+X

Go DEEP:

MOOC

MOOC

MOOC

MOOC

MOOC

MOOC

Go BIG: For CS Majors

