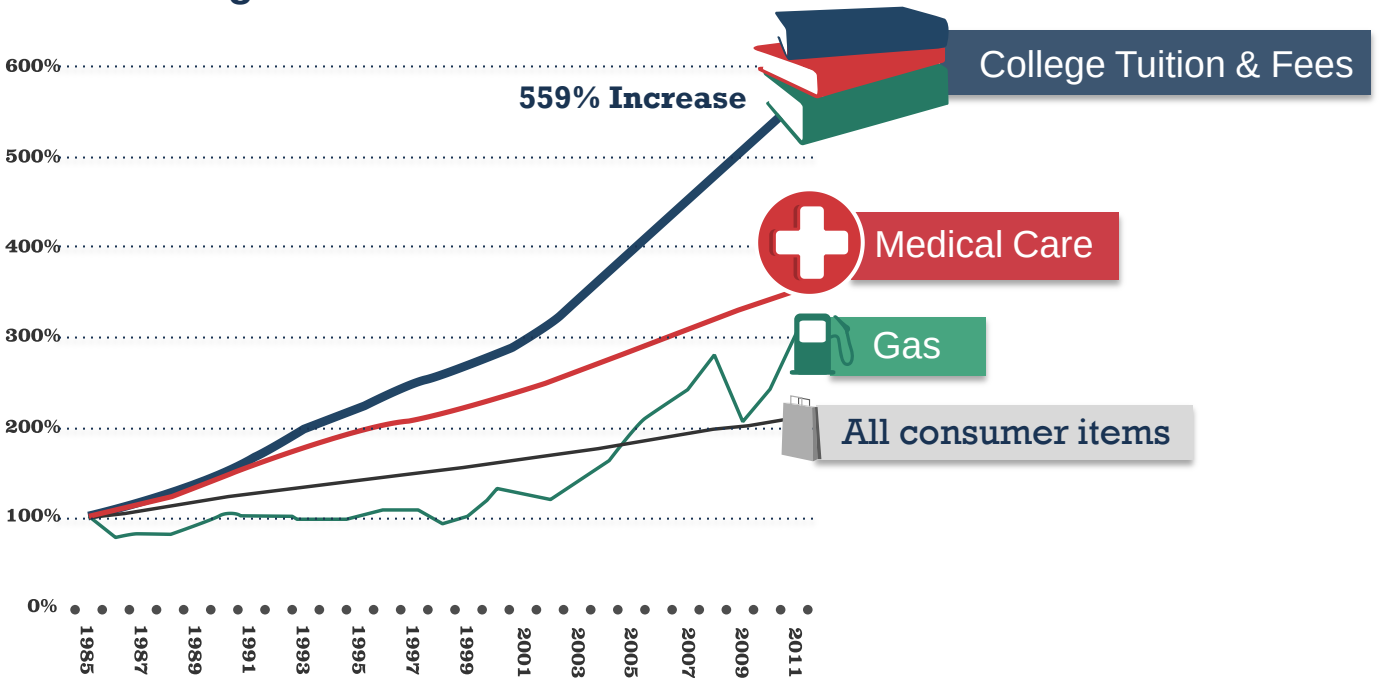
coursera

The Online Revolution: Education for Everyone

Daphne Koller & Andrew Ng
Stanford University & Coursera

Availability

Price Changes Since 1985



Source: *Bureau of Labor Statistics*

Affordability

Big breakthroughs happen when what is suddenly possible meets what is desperately necessary.

—Thomas Friedman

May 15, 2012 · New York Times


100,000


UNIVERSITY OF
MICHIGAN


Penn
University of Pennsylvania


RICE


STANFORD
UNIVERSITY


Caltech


EPFL
ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE


Duke
UNIVERSITY


THE UNIVERSITY
of EDINBURGH


ILLINOIS


PRINCETON
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JOHNS HOPKINS
UNIVERSITY


Georgia Institute
of Technology


UNIVERSITY of
WASHINGTON


UNIVERSITY
of VIRGINIA


UCSF
University of California
San Francisco


UNIVERSITY OF
TORONTO


UBC
a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA


VANDERBILT
UNIVERSITY


BROWN


UCIRVINE
UNIVERSITY OF CALIFORNIA


THE
OHIO
STATE
UNIVERSITY


Berklee
music


University of
Pittsburgh


The Hebrew
University of
Jerusalem


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FLORIDA


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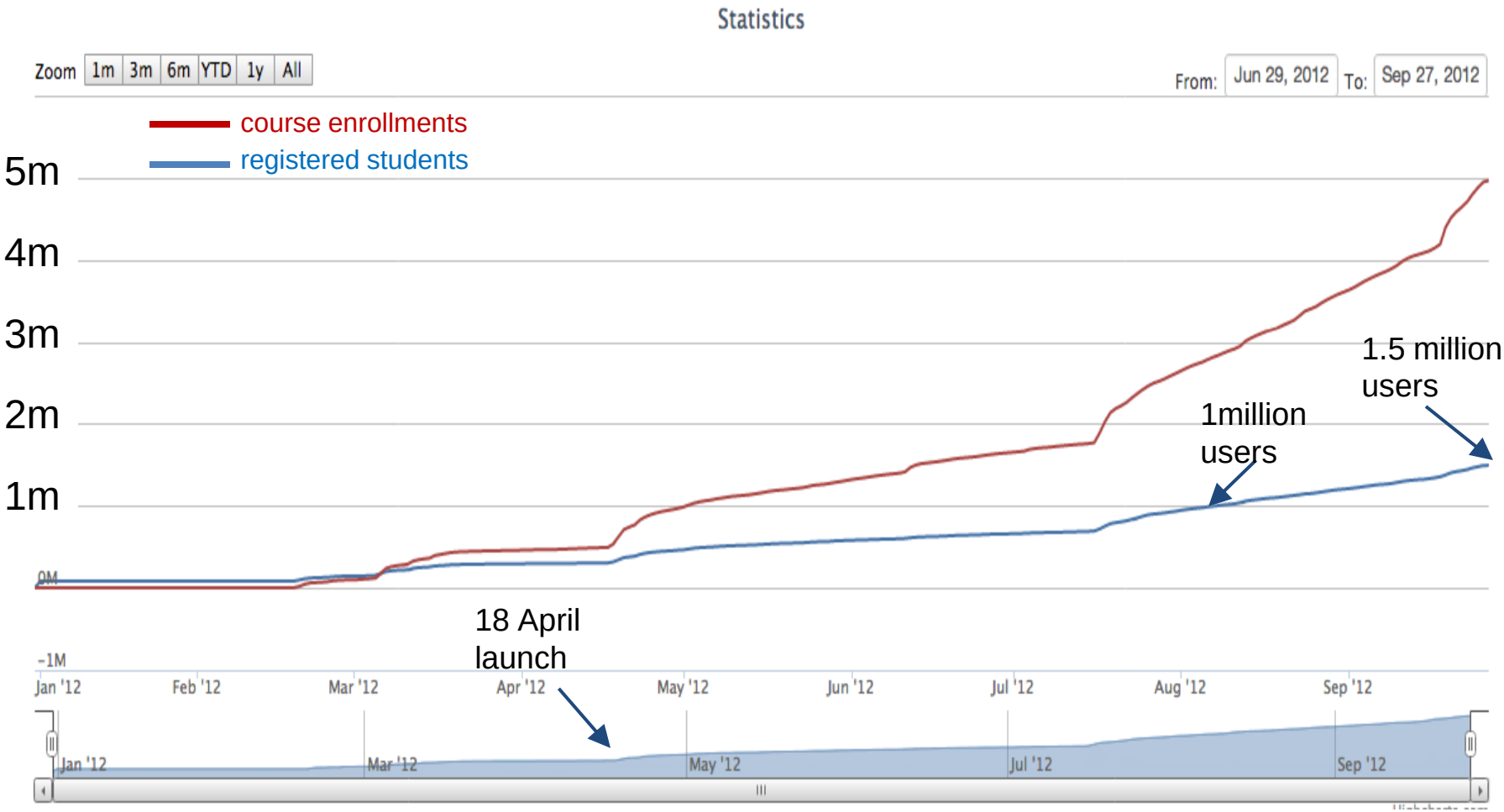
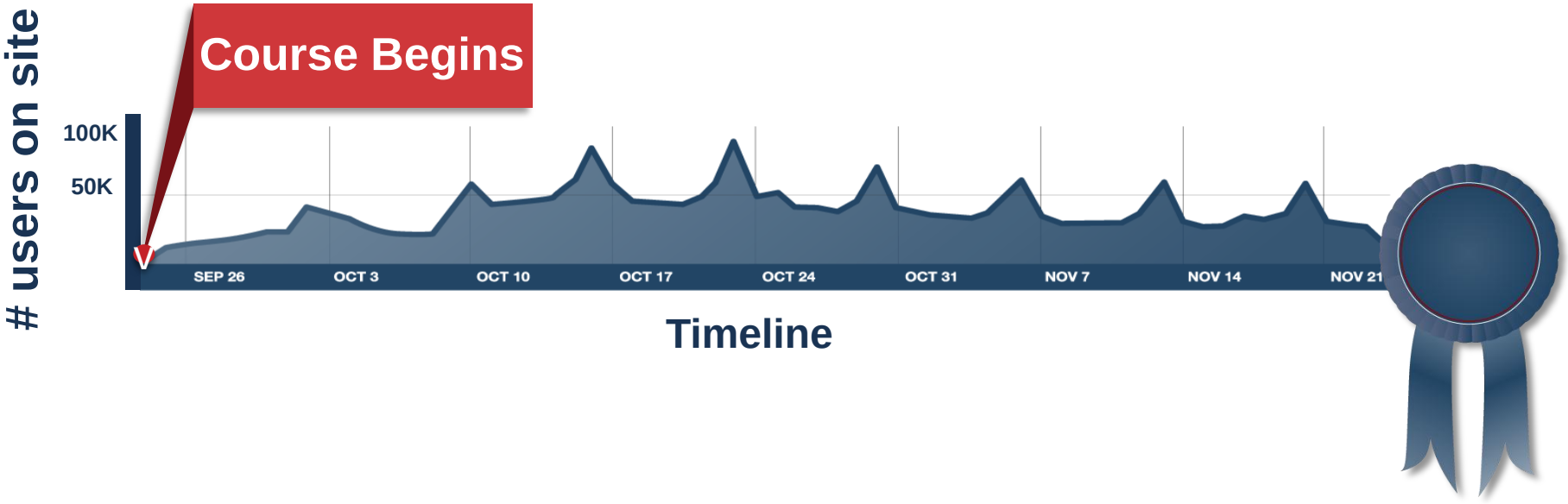

Statistics
Zoom 1m 3m 6m YTD 1y All
From: Jun 29, 2012 To: Sep 27, 2012
course enrollments
registered students
5m
4m
3m
2m
1m
0M
-1M
1.5 million users
1million users
18 April launch
Jan '12
Feb '12
Mar '12
Apr '12
May '12
Jun '12
Jul '12
Aug '12
Sep '12

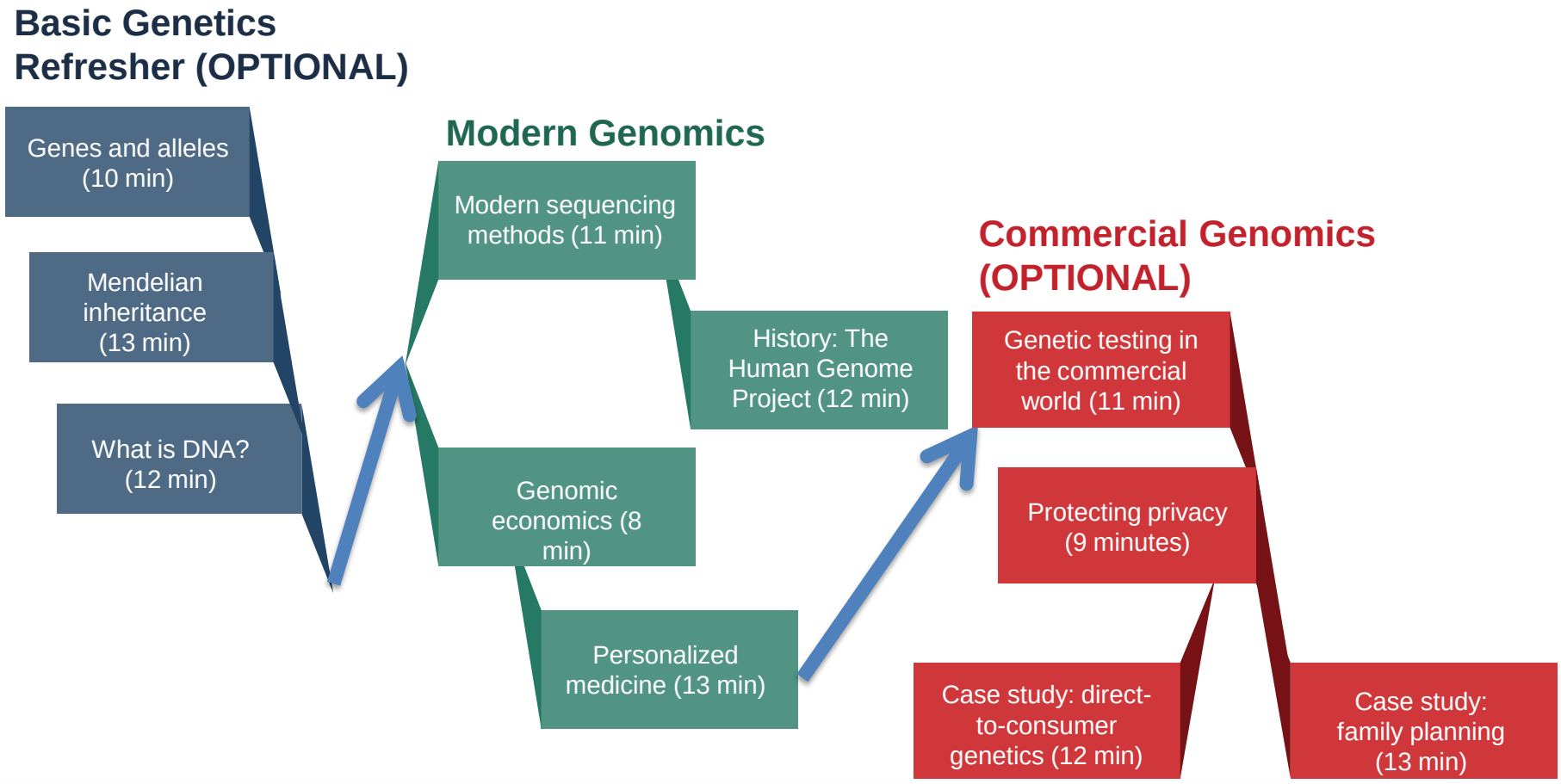
Coming from a middle class family from a small town in India. Never had the luck and guidance to reach Stanford for education. Guess what? God has sent the opportunity right across my door step! Heartfelt thanks to the great team and teachers who made this happen! *(Akash Goswami)*

I've started a database management internship, based partly on my knowledge I gained through your course…


users on site
Course Begins
100K
50K
SEP 26
OCT 3
OCT 10
OCT 17
OCT 24
OCT 31
NOV 7
NOV 14
NOV 21
Timeline

Real Course

VIDEO-BASED INSTRUCTION

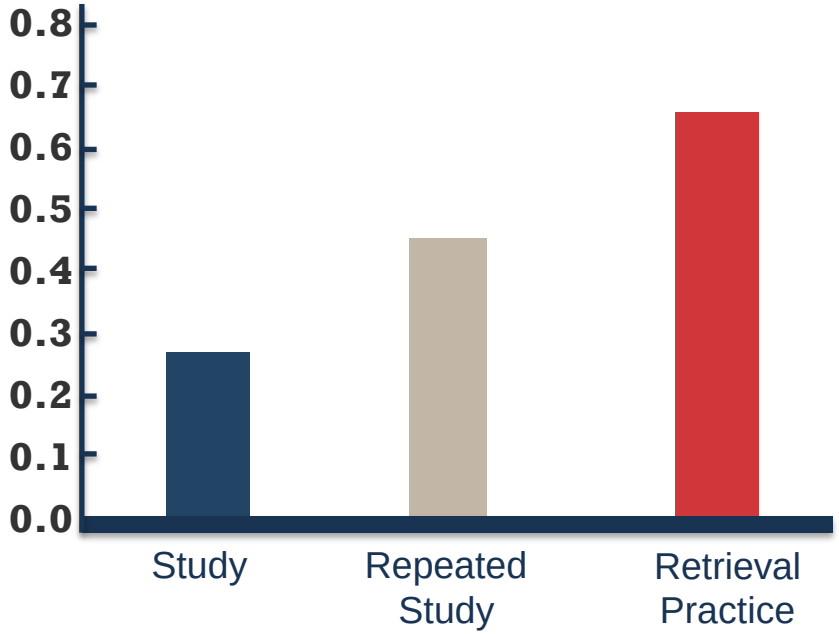


Personalized Learning

ASSESSMENTS

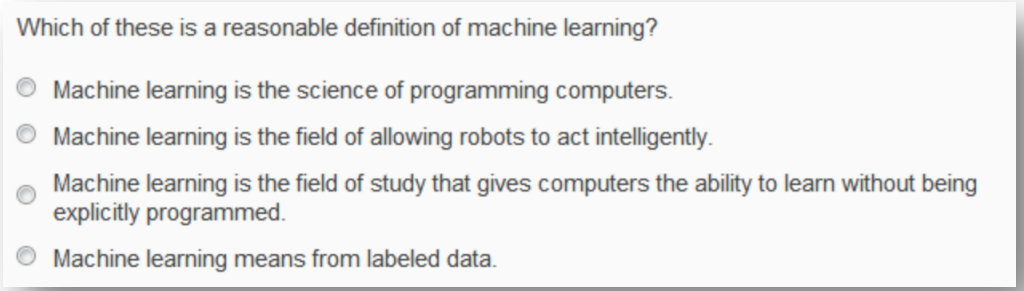
Retrieval Practice Improves Learning

"Retrieval Practice Produces More Learning than Elaborative Studying with Concept Mapping."
J. Karpicke, *J. Blunt. Science* (2011).

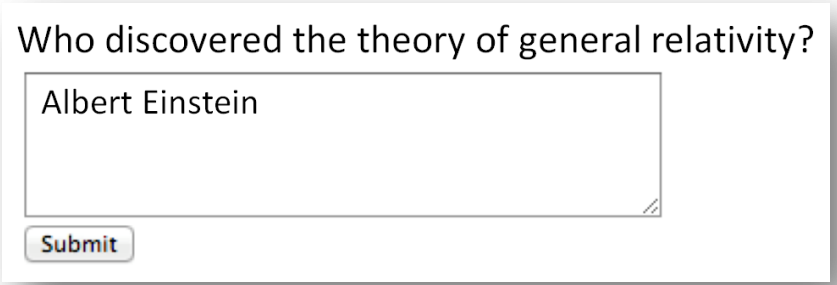


Practice is Critical

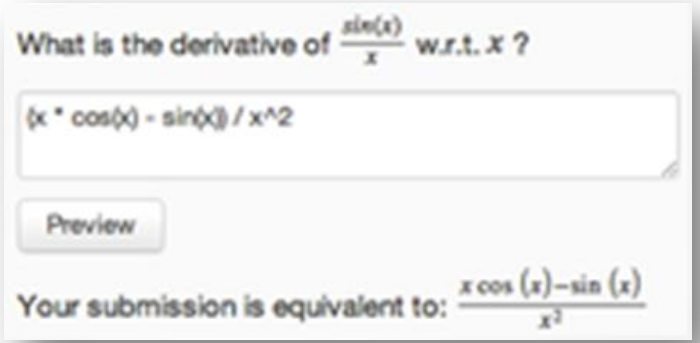
Multiple choice



Short answer (regular expression)



Math expressions



Autograded Homeworks and Exercises

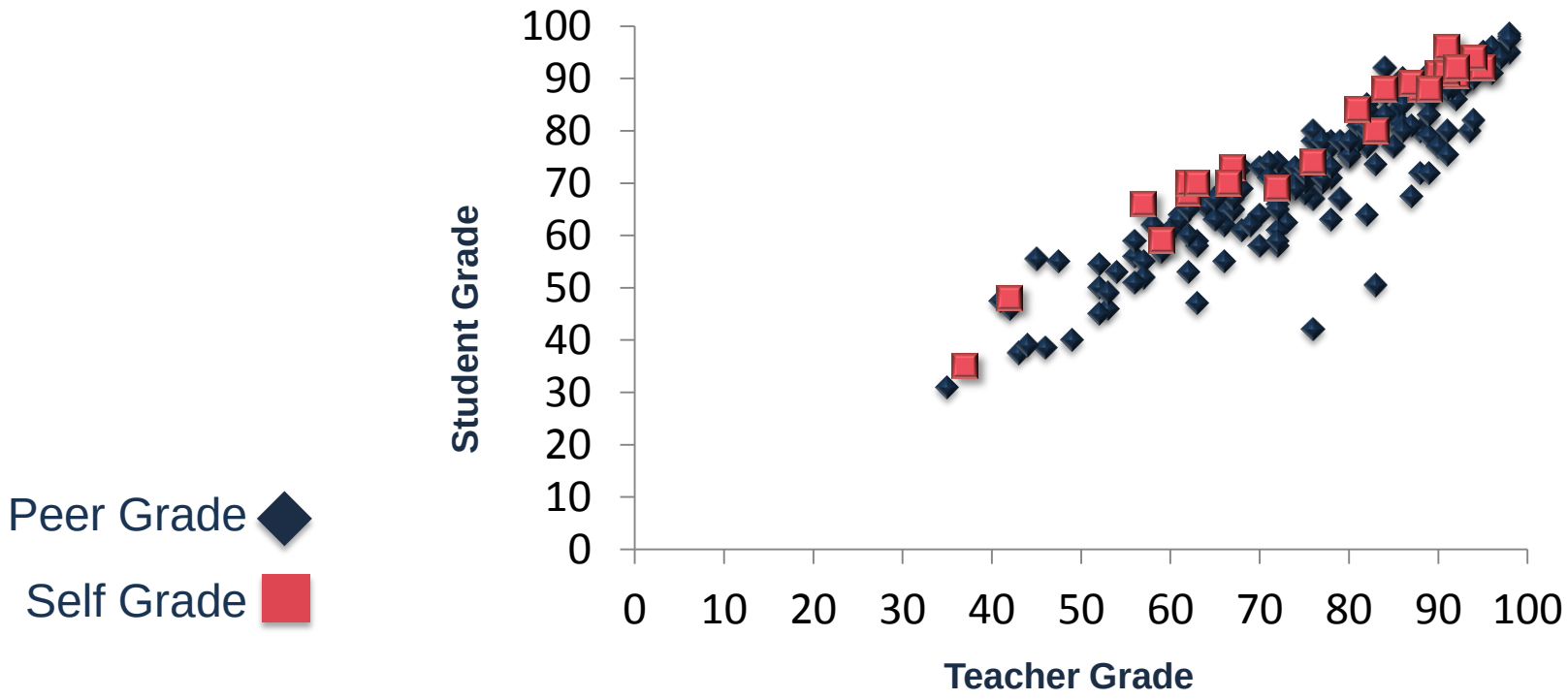
Structured data

	A	B	C	D
1		2012	2013	2014
2	Units sold	20,000	30,000	35,000
3	Revenue	400,000	600,000	700,000
4	COGS	100,000	150,000	175,000
5	Ad spend	30,000	40,000	40,000
6				
7	**Distributor model**			
8	Sales People	1	2	5
9	Dist. per sales person	3	5	8

Computer programs

Autograded Homeworks and Exercises

"The Impact of Self-and Peer-Grading on Student Learning".
P. Sadler, E. Good. *Educational Assessment* (2006).



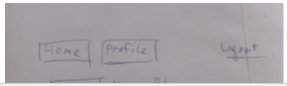
Open-Ended Work

Evaluation criteria & Grading rubric

Grade value 40 points

Guiding questions	0-15 points	16-20 points
Did you make informal prototypes of two ideas? Points off if the prototype is too formal. (As a rough rule of thumb, a detail-oriented computer mock-up is too formal.) *(max 20)*	Fewer than 2 prototypes; ineffectual prototypes; unnecessary formality.	Two prototypes, created rapidly.
Did you test your prototype with at least 5 (3 if the activity is long) users waiting in a real line? *(max 20)*	0-7: Not really. 8-15: The testing was hasty, and done with your friends or family for the sake of convenience.	Yes. With real users who were waiting in a real line.

Photos of your prototypes



Path: p » img

Upload file

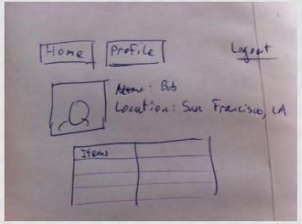
Evaluation

Did the student make informal prototypes of two ideas? Points off if the prototype is too formal. (As a rough rule of thumb, a detail-oriented computer mock-up is too formal.) *(max 20)*

- **0-15 points:** Fewer than 2 prototypes; ineffectual prototypes; unnecessary formality.
- **16-20 points:** Two prototypes, created rapidly.

Comments:

Photos of your prototypes



Evaluation

Did the student make informal prototypes of two ideas? Points off if the prototype is too formal. (As a rough rule of thumb, a detail-oriented computer mock-up is too formal.) *(max 20)*

Aggregate score: **17.5**

Comments:

student1: Your prototypes were at the right level of formality.

student2: I'm glad you chose to highlight the navigation buttons and de-emphasized the less important actions.

student3: You clearly put a lot of effort, but the assignment asked a high-level prototype, and your submission had too much detail.

student4: pretty good

student5: I was a bit confused about which parts of your 2nd prototype to focus on. The professor ssaid a good informal prototype doesn't show details for views that don't impact the flow of the UI.

Peer Grading

UNIVERSITY OF MARYLAND, COLLEGE PARK

E-learning and Digital Cultures

Jeremy Knox, Sian Bayne, Hamish Macleod, Jen Ross, Christine Sinclair

UNIVERSITY OF EDINBURGH

Jan 28th 2013
5 weeks long

Introduction to Philosophy

Dave Ward, Duncan Pritchard, Michela Massimi, Suilin Lavelle, Matthew Chrisman, Allan Hazlett, Alasdair Richmond

UNIVERSITY OF EDINBURGH

Jan 28th 2013
7 weeks long

The Social Context of Mental Health and Illness

Charmaine Williams

UNIVERSITY OF TORONTO

Jan 28th 2013
6 weeks long

Critical Thinking in Global Challenges

Celine Caquineau, Mayank Dutia

UNIVERSITY OF EDINBURGH

Jan 28th 2013
5 weeks long

Introduction to Computer Networks

Arvind Krishnamurthy, David Wetherall, John Zahorjan

UNIVERSITY OF WASHINGTON

Jan 28th 2013
10 weeks long

Grow to Greatness: Smart Growth for Private Businesses, Part I

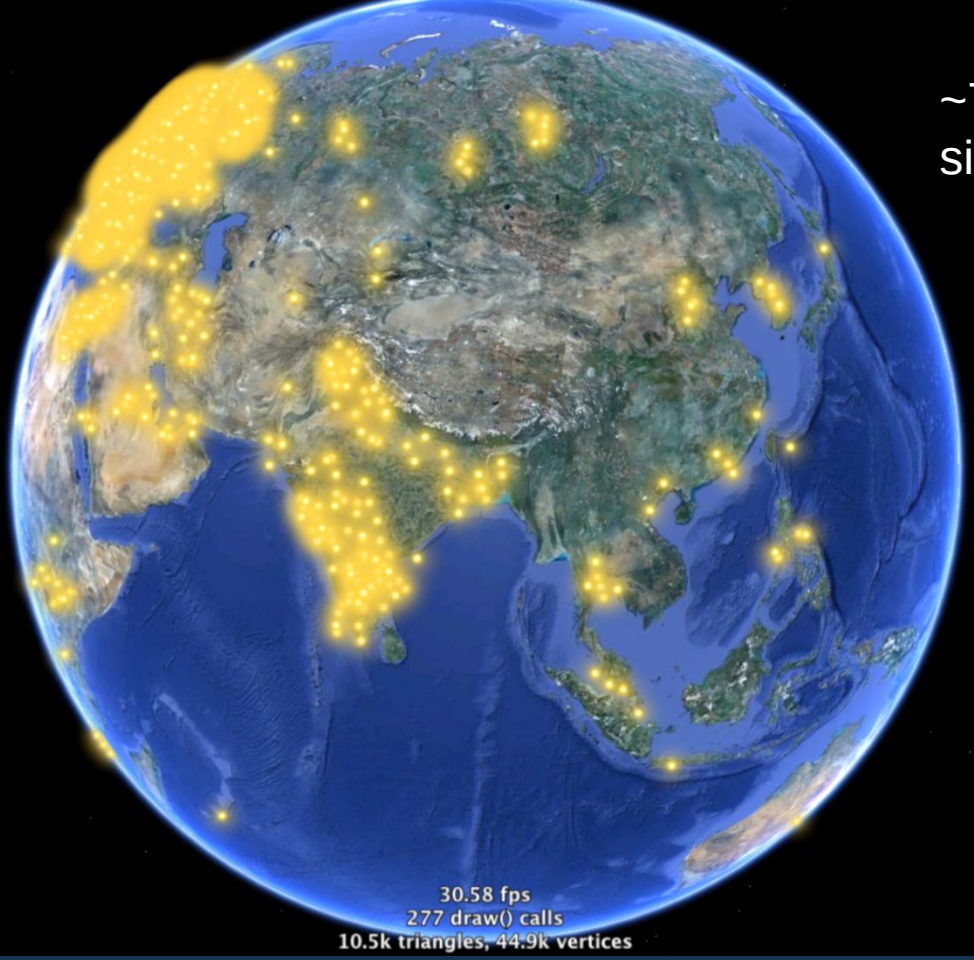
Edward D. Hess

Jan 28th 2013
5 weeks long

The Humanities, Sciences, Engineering, Business, ….

COMMUNITY

** font size proportional to sqrt(number of participants)



~7000 students on site at most times

Google earth

Global Community

16
vote(s)

In one of the questions, it is suggested that we "Use the unix command line utilities". How do I solve this on a non-unix OS? I have never worked with this, so I am at a complete loss what to do. Thanks in advance

Posted by [redacted] (Student)
on Wed 7 Mar 2012 6:41:09 PM PST

Add New Comment

Median response time: 22 minutes

Time (Oldest to Newest) Time (Newest to Oldest) Votes (Most to Least)

11
vote(s)

If you want the true 'Unix experience', running a virtual machine is better than using cygwin / gnuwin, imo.

Oracle VirtualBox is great, and you can find many preconfigured virtual machine image on Virtualboxes.org. Choose Ubuntu, if you are new to the linux world. That one also has Python 2.7 included, while many other distributions like Debian still have Python 2.6

Open a terminal window by entering 'terminal' in the dashboard. You can also install 'Guake Terminal', then you can always open and close a terminal by pressing F12.

Posted by [redacted] (Student)
on Thu 8 Mar 2012 4:59:24 AM PST

Add New Comment

Students

31
vote(s)

Assuming you're using windows, you can

- install cygwin, or
- install gnuwin32, or
- run live linux in virtualbox (e.g. ubuntu live cd)

Posted by [redacted] (Student)
on Wed 7 Mar 2012 7:40:21 PM PST

Add New Comment

76
vote(s)

Ordering for assigning factors to cliques in ComputeInitialPotentials. The order of assignment of factors to cliques should happen in the order cliques are given to you at the end of the CreateCliqueTree function. Each factor should be assigned to the first clique that contains the variables in the factor, where ordering of the cliques is given in C.nodes (C is the argument for ComputeInitialPotential function).

For example: in function ComputeInitialPotentials, the argument C has a field nodes. Now let's say the contents of C.nodes are:

C.nodes{1} = [1 2]

C.nodes{2} = [2 3]

And your factors are [1], [2], [3]. So [1] and [2] should be assigned to the 1st clique. Even though [2] can be assigned to the second clique, for the purpose of this assignment we are going to assign [2] to the first clique that contains it.

Order of Variables in Cliques. You should use CliqueTree.nodes{} to get the ordering for your variables and those nodes are in numerical order.

Empty cliques. It is possible that you may end up with cliques with no factors assigned to them. If that is the case, set the initial potential to 1 for all variable assignments for that clique.

CliqueTreeCalibrate (for max-sum) If you are having problems with this part, but your code is otherwise correct for sum-product message passing, make sure that your FactorMaxMarginalization works properly with logspace-potentials.

Clique Potentials If you have a clique over variables [1 2 3] with only one factor assigned to it, say [1], then you should assume that there's an initial potential over [1 2 3] with all 1s and multiply it.

This is the implementation we have and it doesn't really affect the answer because you will end up multiplying stuff about all your variables in the clique. If a variable does not appear in any factor, then it shouldn't be in any clique. However, if a variable is in a clique and just that the factors assigned to the clique don't contain the variable then there must be some other clique that contains that variable, and to which the factor is assigned. By running intersection property that variable has to be in the sepset so you will get messages for it.

*Posted by [redacted] **(Community TA)***
on Mon 9 Apr 2012 2:36:28 PM PDT

Community TA

Comments

0

Thanks a lot! It clarified several things for me. However, when you mention empty cliques, apart from the initial potential set to 1: what variable (I mean, field .var) should we put? Zero? An empty vector []? And the cardinality? Because this has an effect on the amount of values (all ones, as you said).

[Delete] *Posted by [redacted] (Student)*

Vietnam

Nigeria Miami

Austin, Texas

Russian speaking students

Minnesota

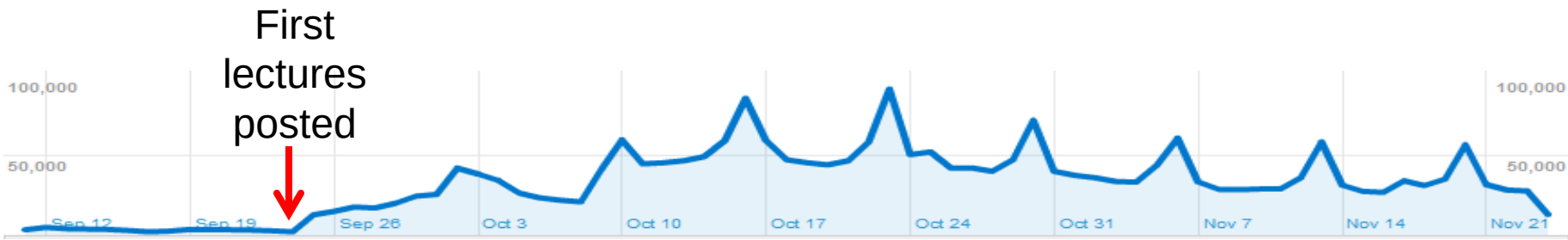
Guatemala

Arabic speaking students

A multilingual universal study group

Athens Nepal Kenya

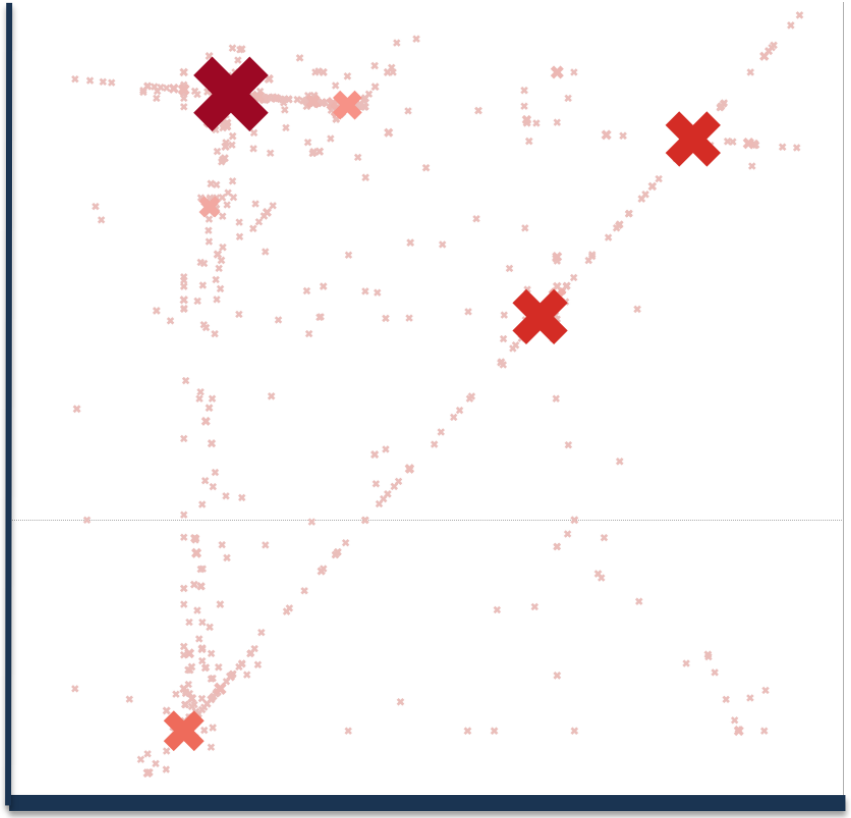
Student Study Groups



STATISTICS & ANALYTICS

Coursera

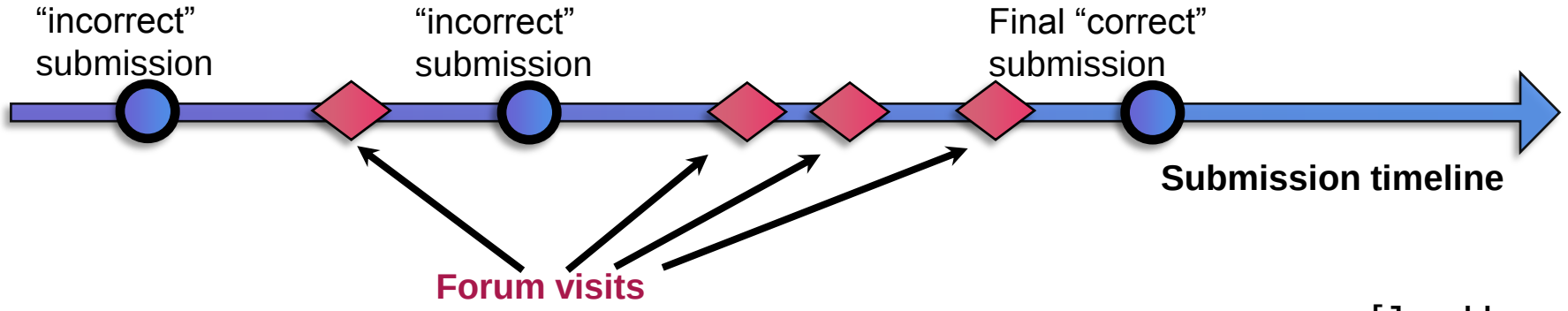
Wrong student answers



New Window into Human Learning

Identify the forum discussion thread which is most likely to cause a student to correct misconception.

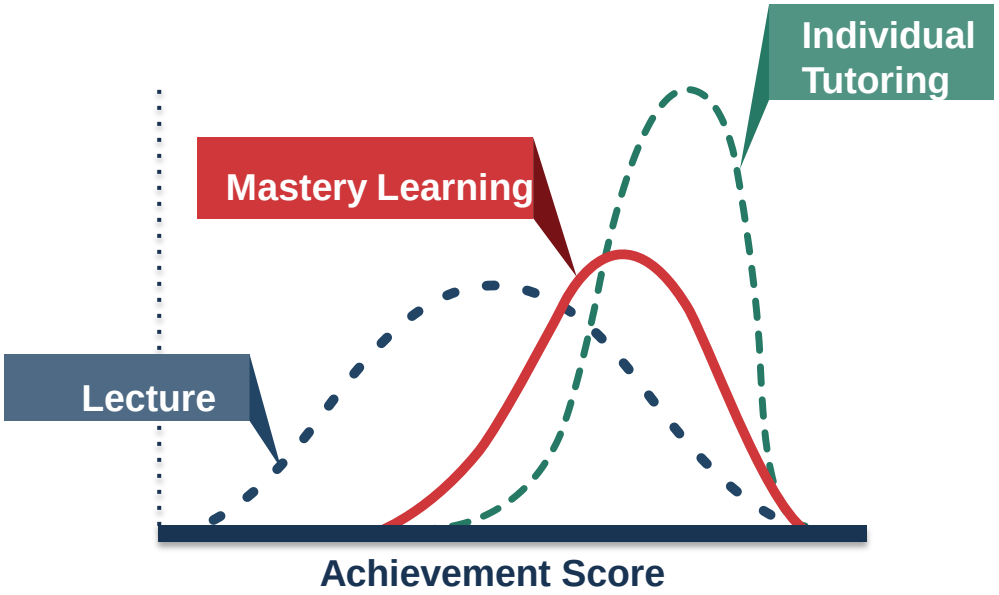
Experimental setup:

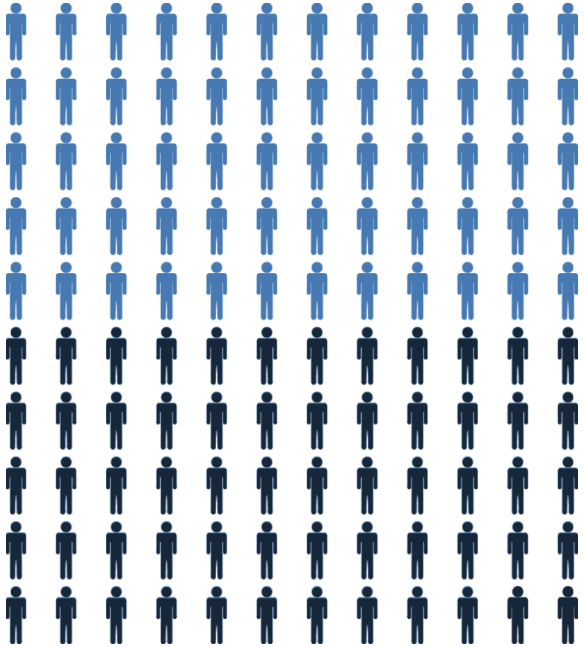


[Jon Huang]

IMPROVING TEACHING

"The 2 Sigma Problem: The Search for Methods of Group Instruction as Effective as One-to-One Tutoring." *B. Bloom, Educational Researcher* (1984).





The 2 Sigma Problem

College is a place where a professor's lecture notes go straight to the students' lecture notes, without passing through the brains of either.

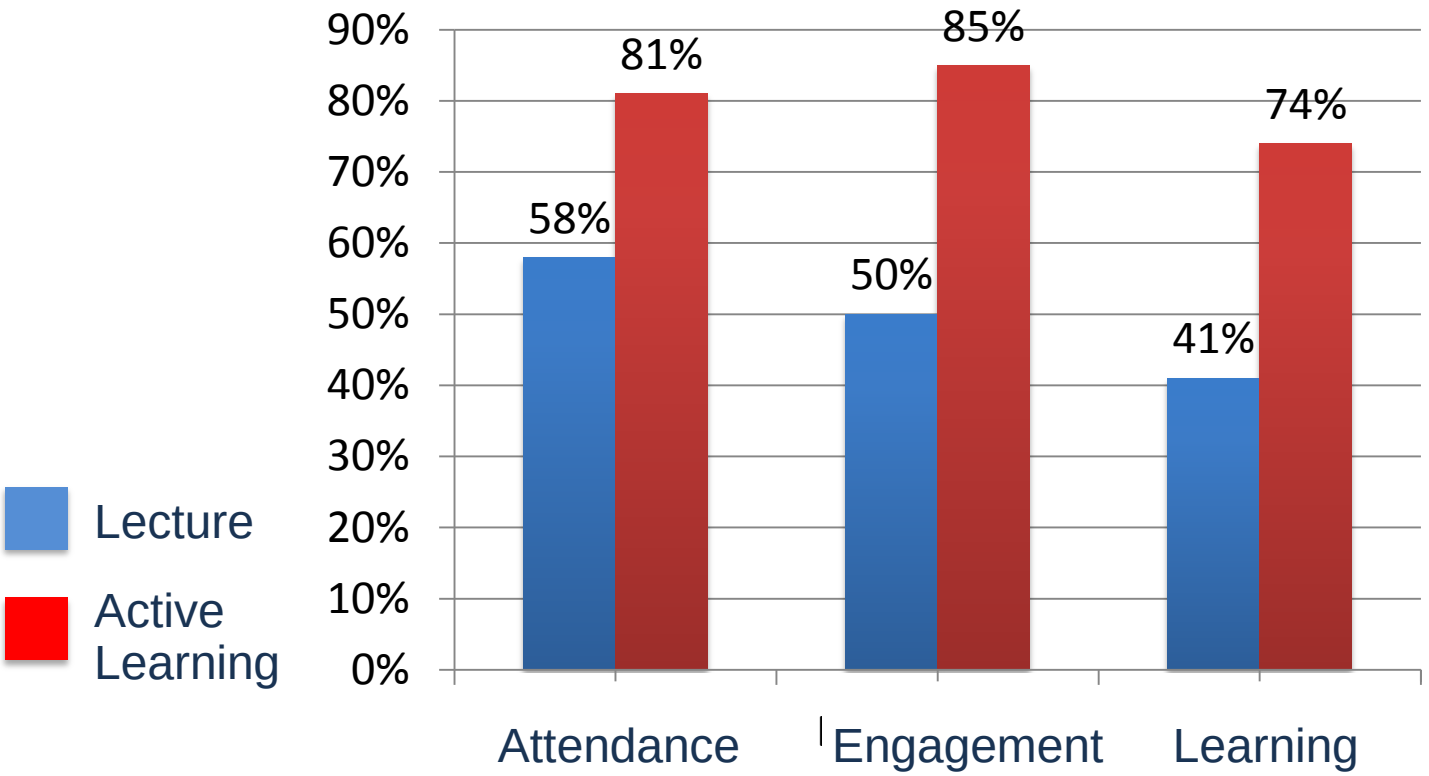
—Edwin Emery Slosson

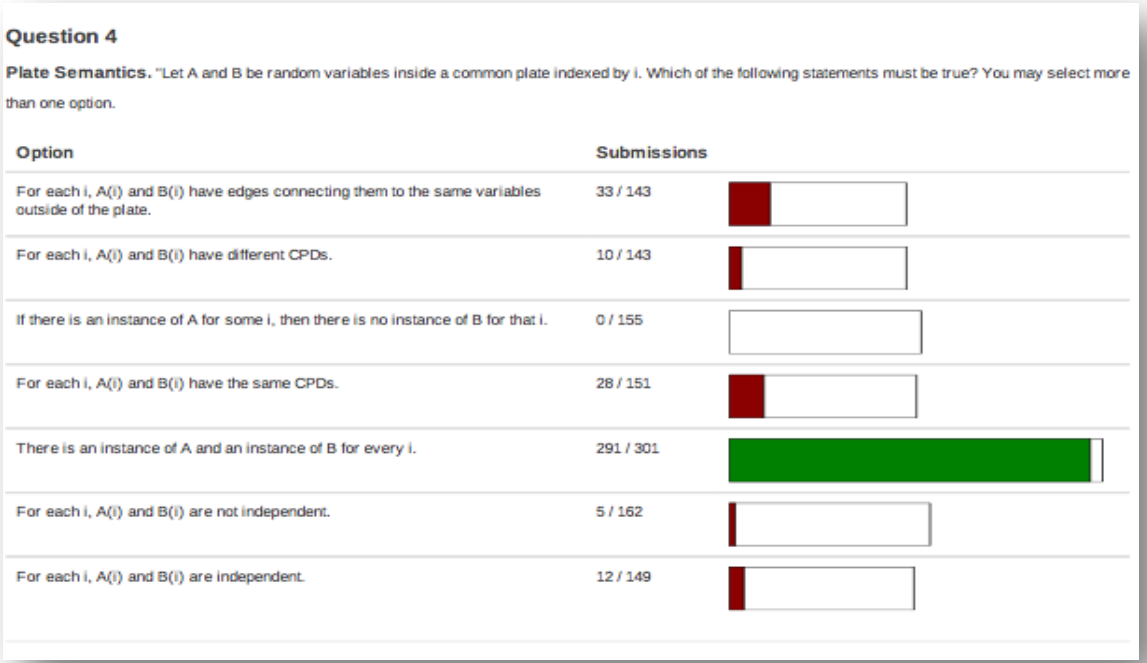
The mind is not a vessel that needs filling, but wood that needs igniting.

—Plutarch

from Ian Kidd's translation of Essays

"Improved Learning in a Large-Enrollment Physics Class."
L. Deslauriers, E. Schelew, and C. Wieman. *Science* (2011).





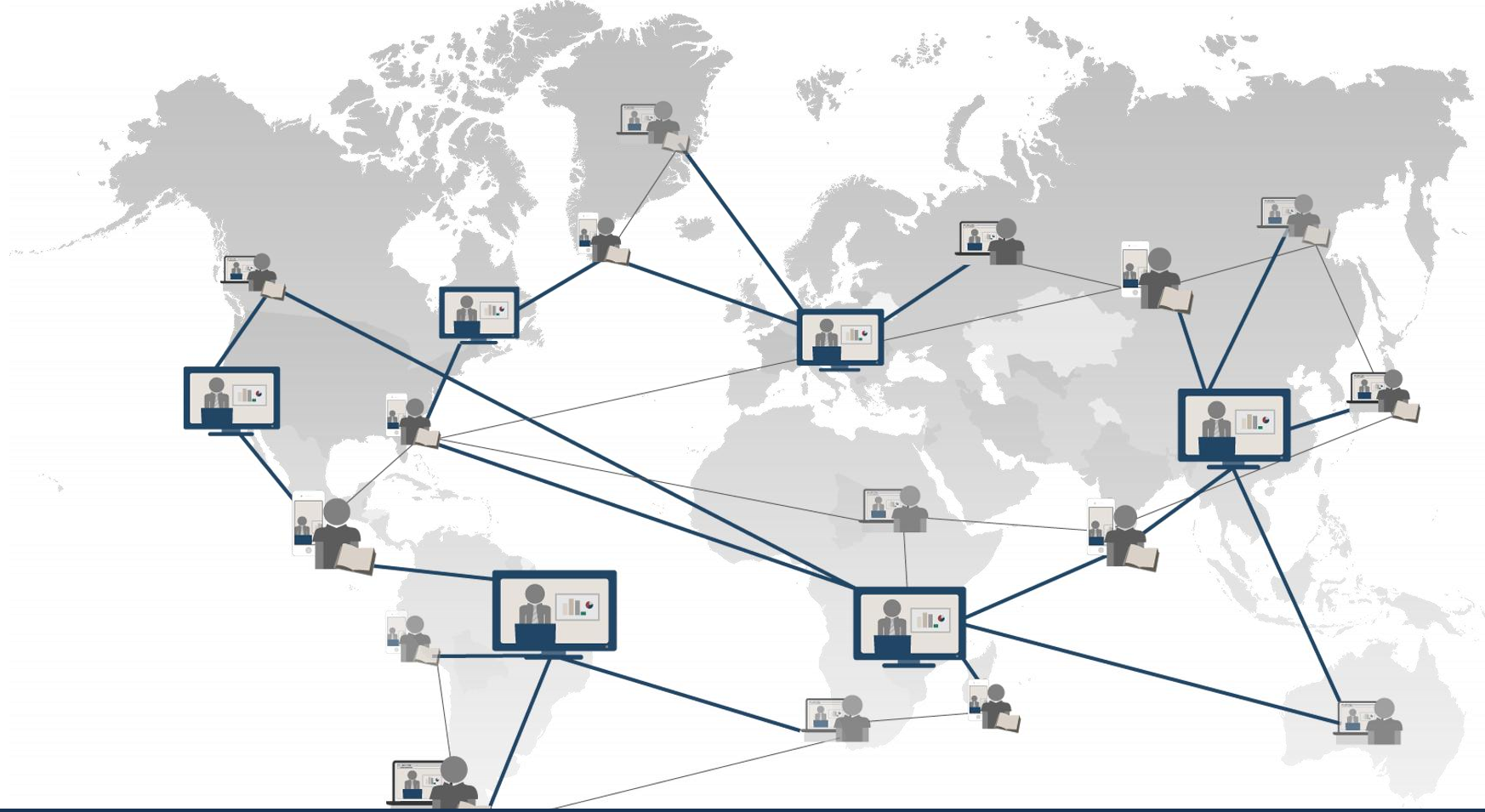
Question 4

Plate Semantics. "Let A and B be random variables inside a common plate indexed by i. Which of the following statements must be true? You may select more than one option.

Option	Submissions
For each i, A(i) and B(i) have edges connecting them to the same variables outside of the plate.	33 / 143
For each i, A(i) and B(i) have different CPDs.	10 / 143
If there is an instance of A for some i, then there is no instance of B for that i.	0 / 155
For each i, A(i) and B(i) have the same CPDs.	28 / 151
There is an instance of A and an instance of B for every i.	291 / 301
For each i, A(i) and B(i) are not independent.	5 / 162
For each i, A(i) and B(i) are independent.	12 / 149

- Just-in-time teaching
- Real-world case studies
- Team problem solving

Active learning in the classroom



Universal Access to Education