



MIT (1960)

Education: past and present

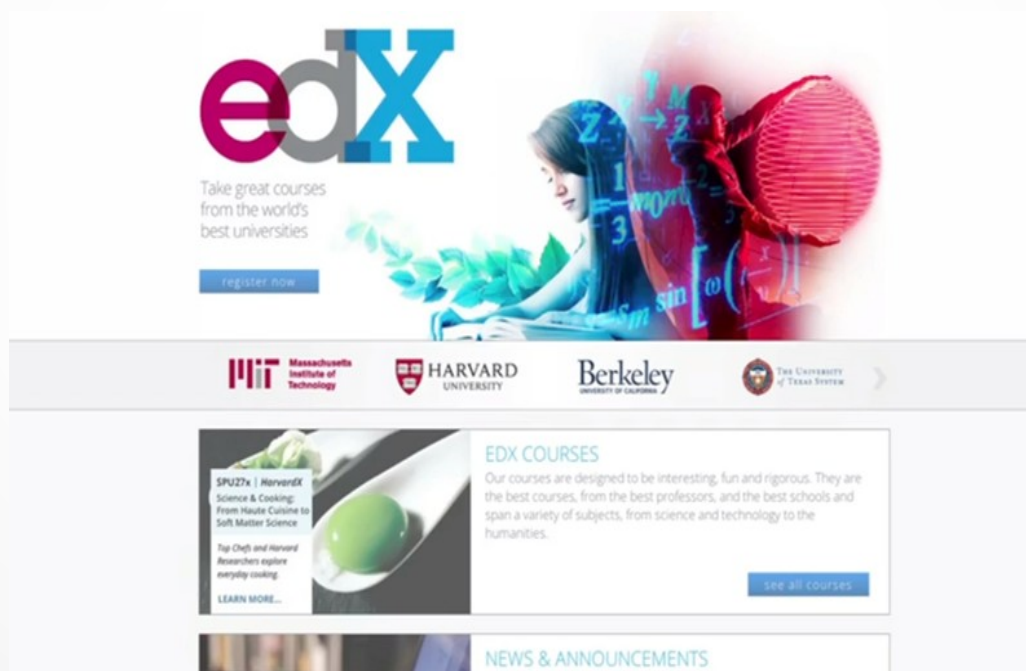
In spite of tremendous technological advancements, education hasn't really changed for centuries.



MIT (2010)

Using online technologies

Online technologies can transform education in both scale and access.



The banner features the edX logo in the top left, with the text "Take great courses from the world's best universities" and a "register now" button below it. To the right is a stylized illustration of a person with long hair, overlaid with mathematical symbols like \sin , ω , and λ , and a red circular pattern. Below the illustration is a row of university logos: MIT Massachusetts Institute of Technology, HARVARD UNIVERSITY, Berkeley UNIVERSITY OF CALIFORNIA, and The University of Texas System. Below the logos is a section titled "EDX COURSES" with a description of the courses and a "see all courses" button. At the bottom is a section titled "NEWS & ANNOUNCEMENTS".

edX
Take great courses
from the world's
best universities
[register now](#)

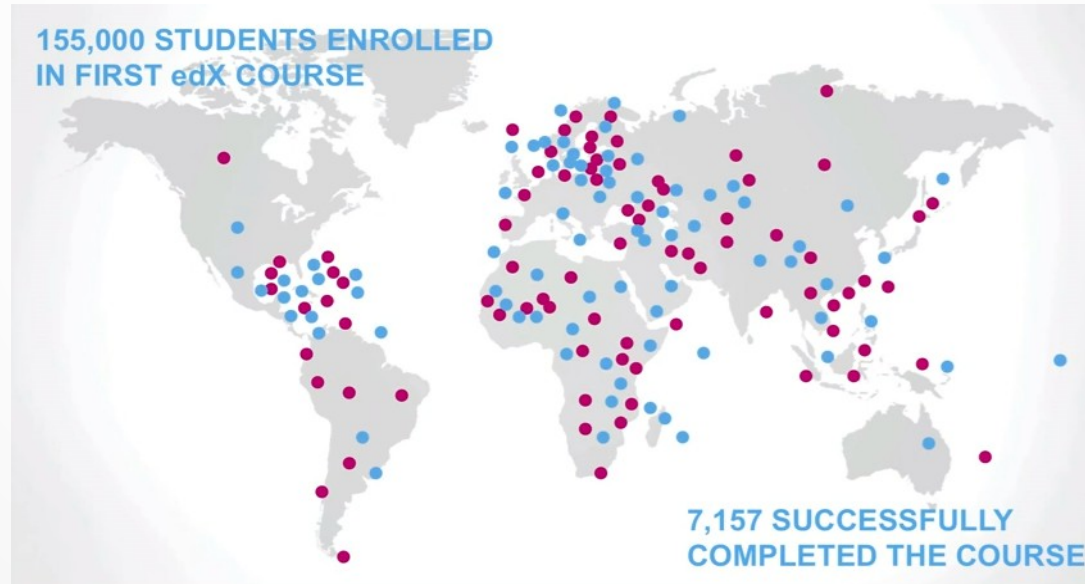
MIT Massachusetts Institute of Technology
HARVARD UNIVERSITY
Berkeley UNIVERSITY OF CALIFORNIA
The University of Texas System

EDX COURSES
Our courses are designed to be interesting, fun and rigorous. They are the best courses, from the best professors, and the best schools and span a variety of subjects, from science and technology to the humanities.
[see all courses](#)

NEWS & ANNOUNCEMENTS

Impact of massive open online courses

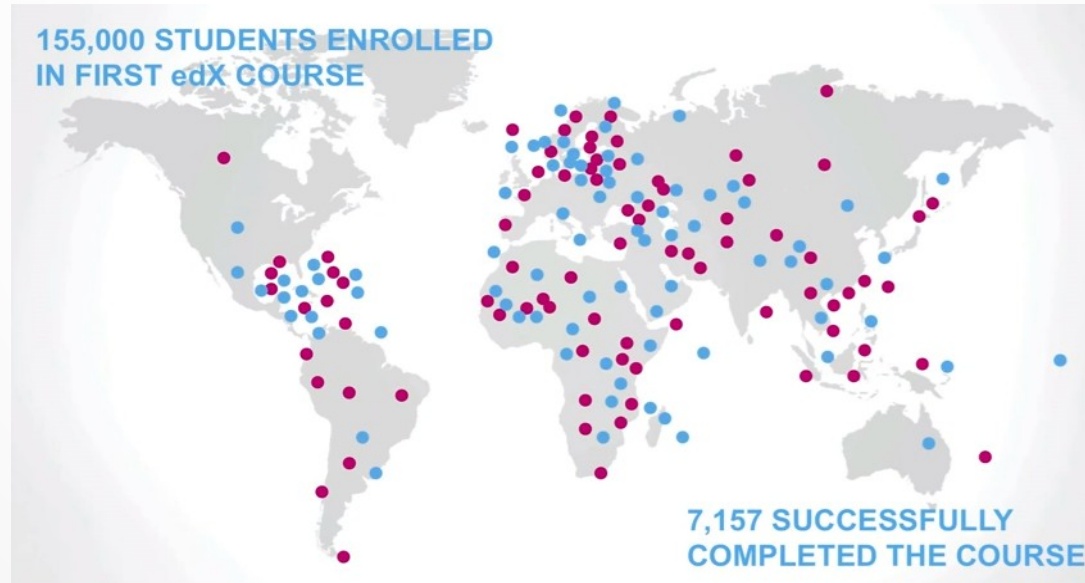
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Impact of massive open online courses

Online technologies can transform education in both scale and access.

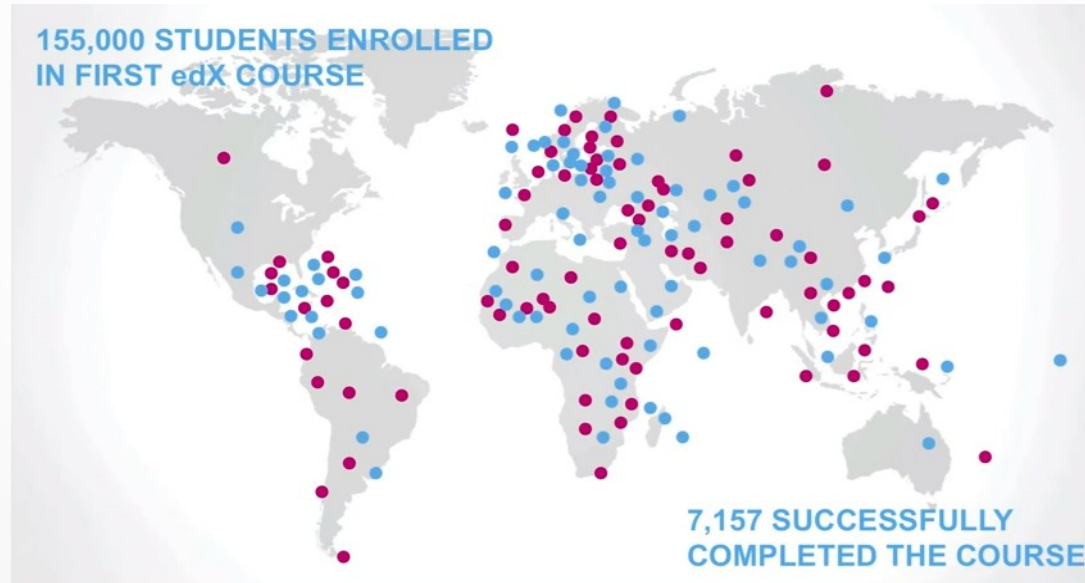
More than entire
MIT alumni



Impact of massive open online courses

Online technologies can transform education in both scale and access.

More than entire
MIT alumni



40 years of
lecture time

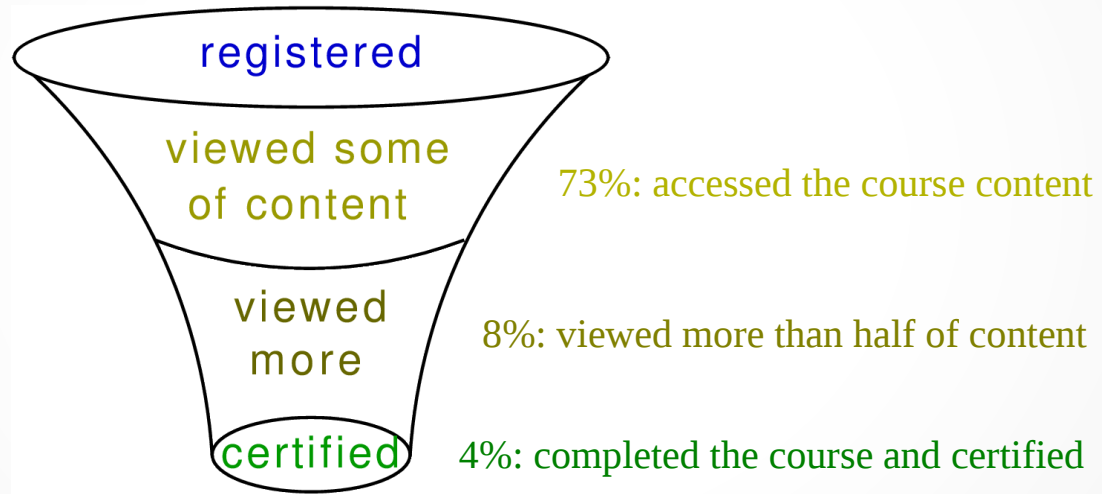
edX data

Data is aggregated from a series of 17 online courses offered in 2012-2013 by Harvard & MIT on *edX* (445000 active registrants).

Students {
videos watched
chapters studied
days active
registration date
last interaction date
level of education
age
gender

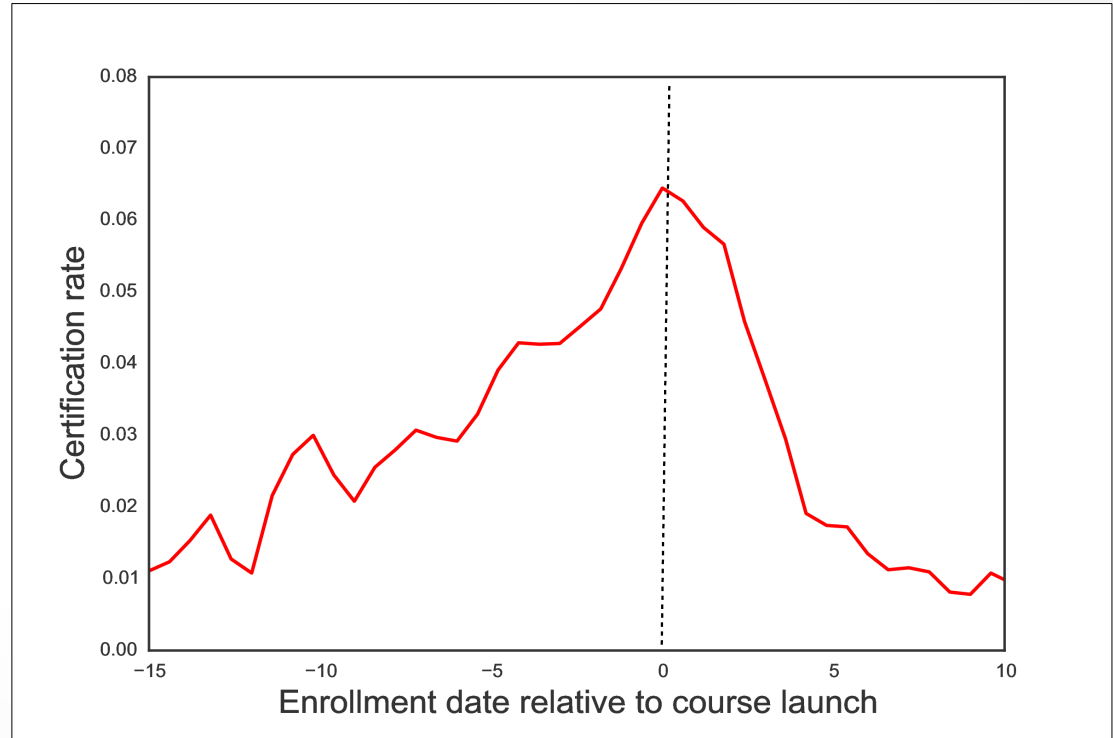
Courses {
subject
instructor
start date
end date

The Funnel

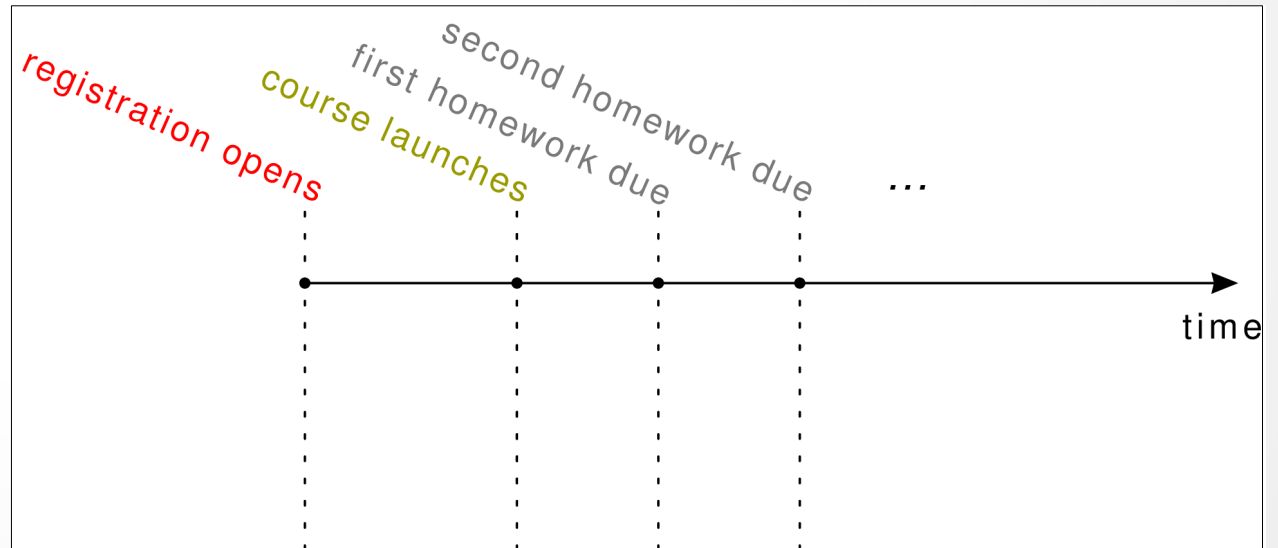


Point of maximal interest

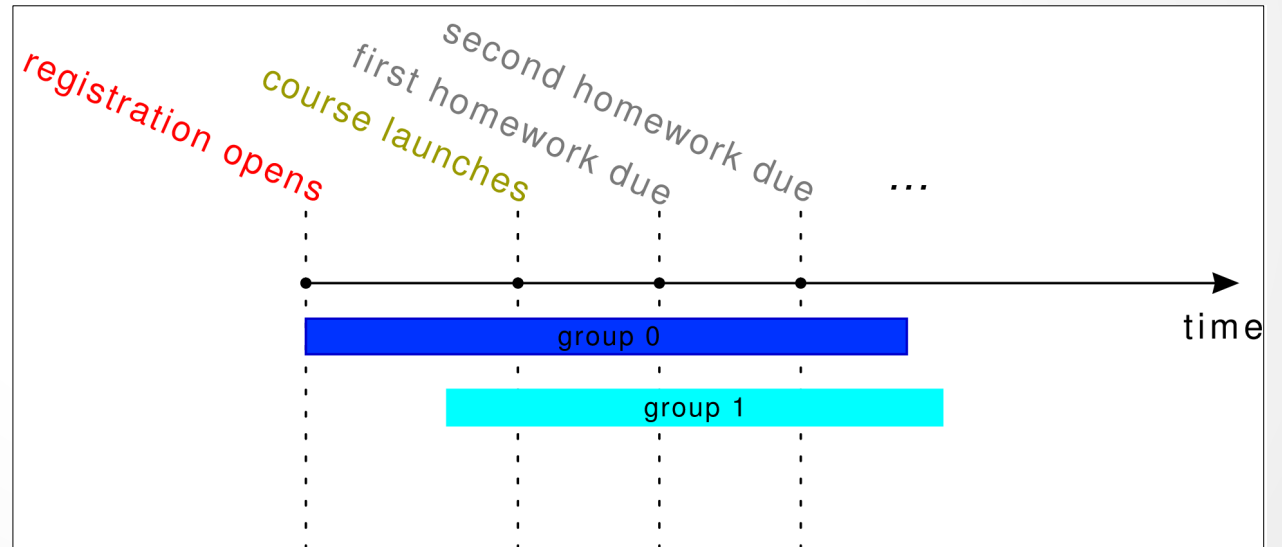
- Certification is highest for student who register near course launch.
- It rapidly drops for those registered later.



Course timeline

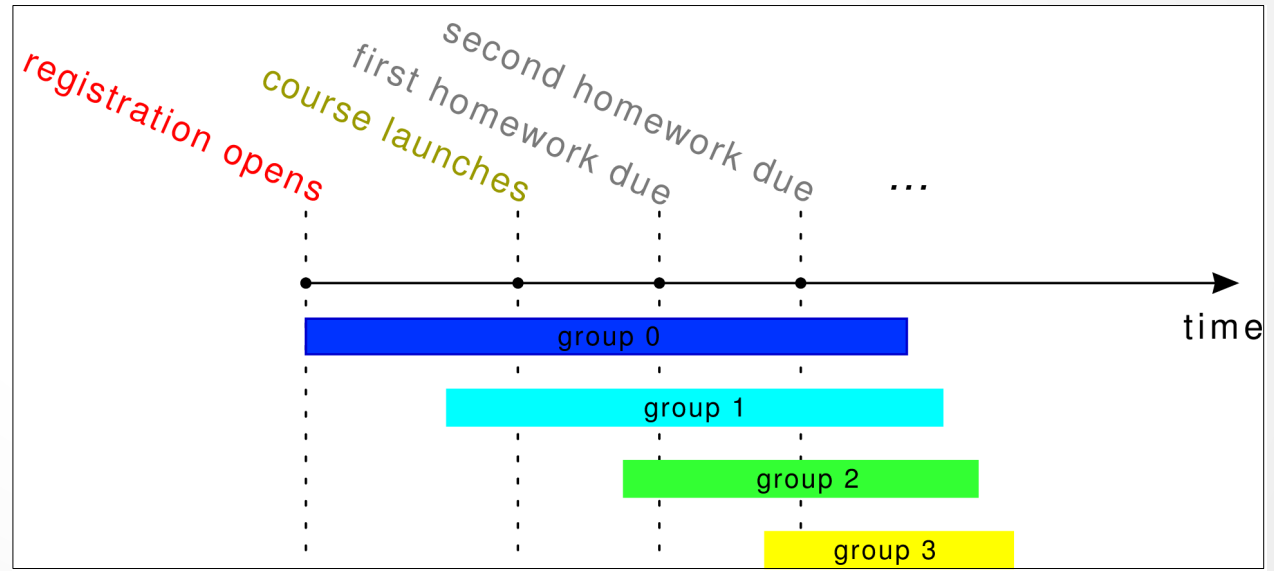


Course timeline



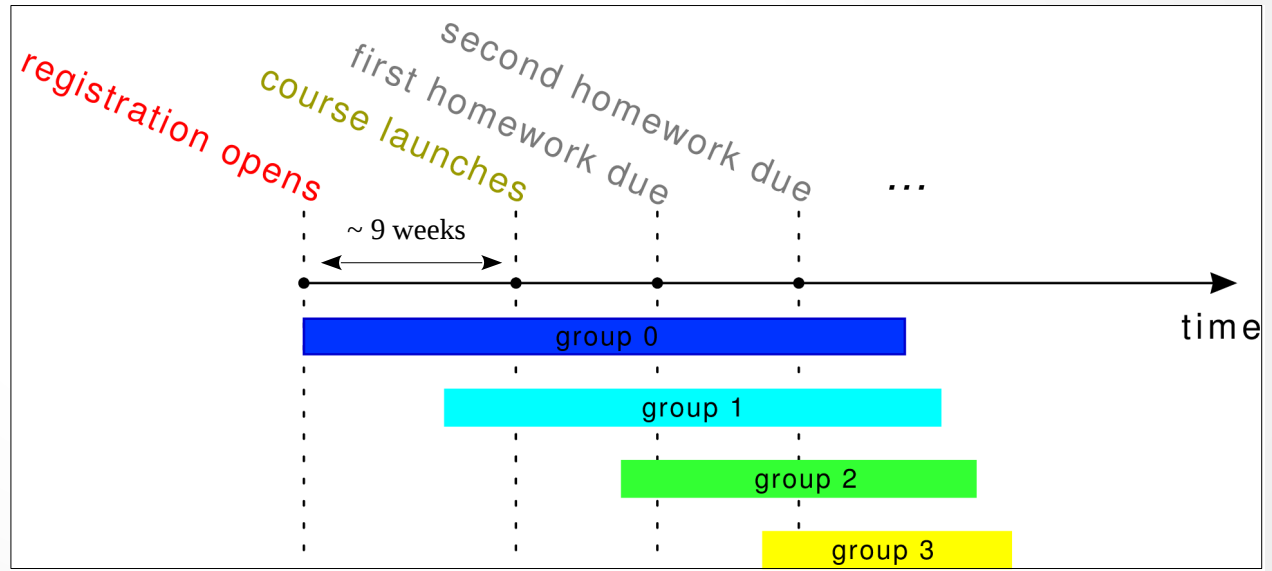
Course timeline

- Performance of late registrants (grp 2 & 3) suffers from shorter/missed deadlines.



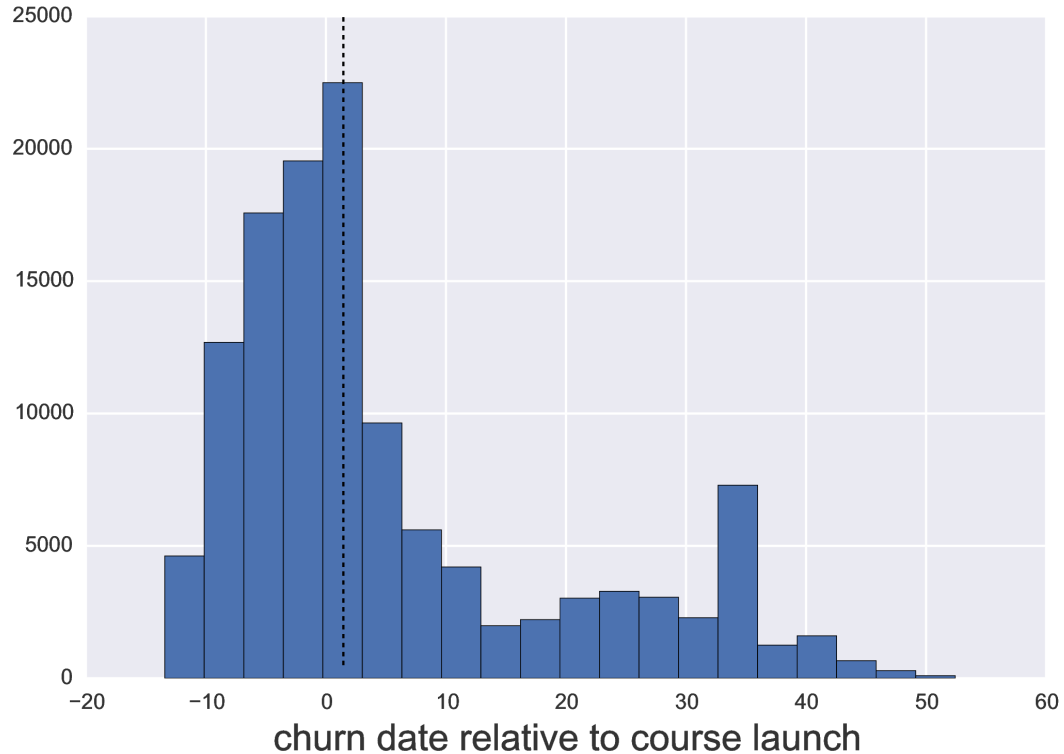
Course timeline

- Performance of late registrants (grp 2 & 3) suffers from shorter/missed deadlines.
- Early registrants (grp 0) have to wait longer to get access to course content.

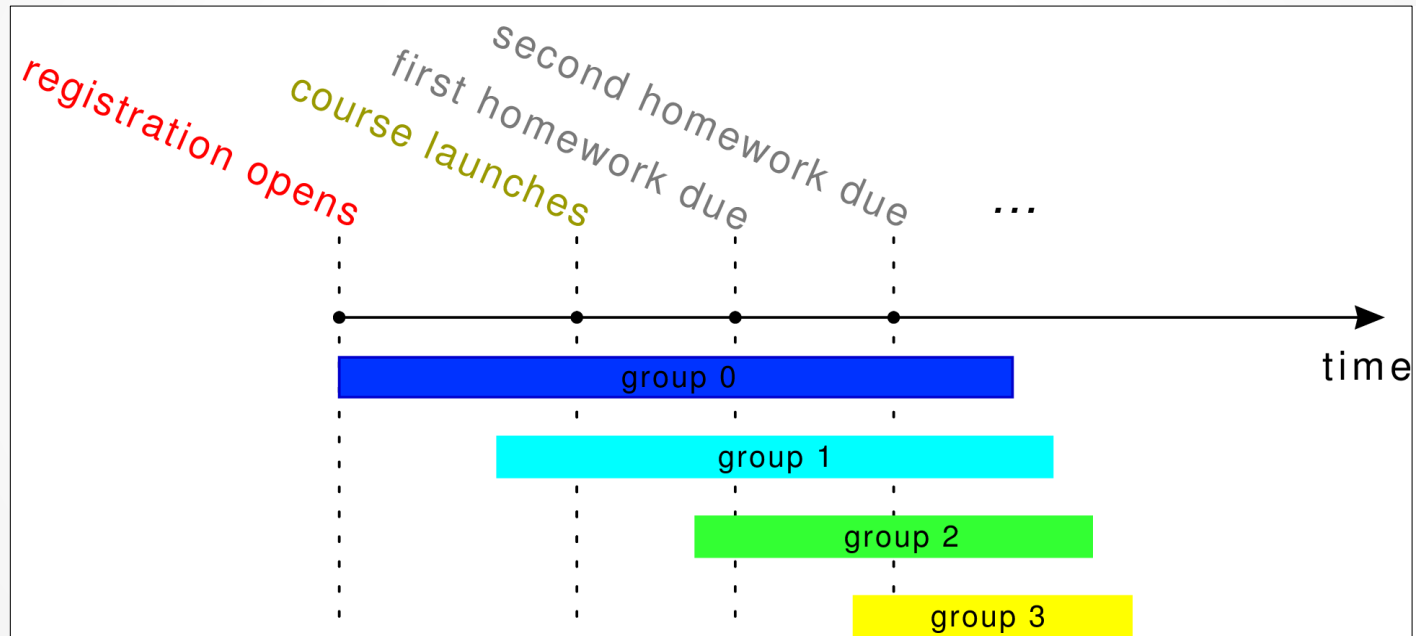


'course view' negatively affected by timeline

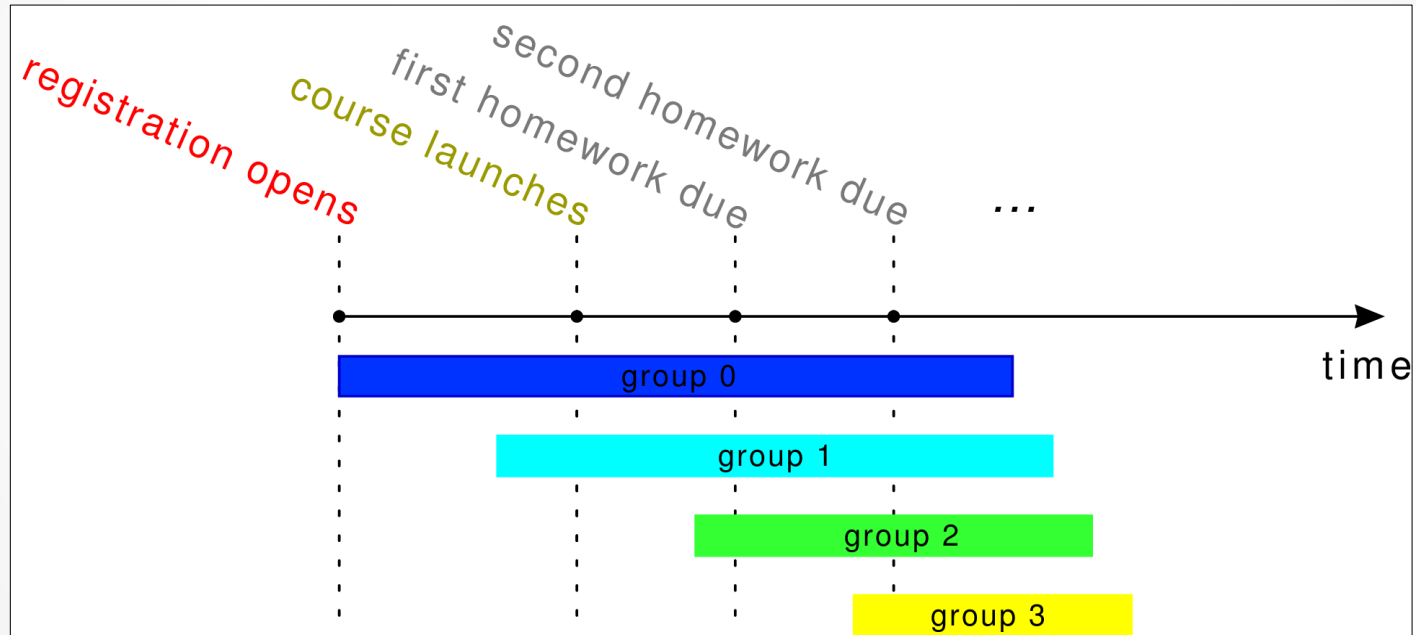
- Early registrants (grp 0) have to wait longer to get access to course content.



Current timeline

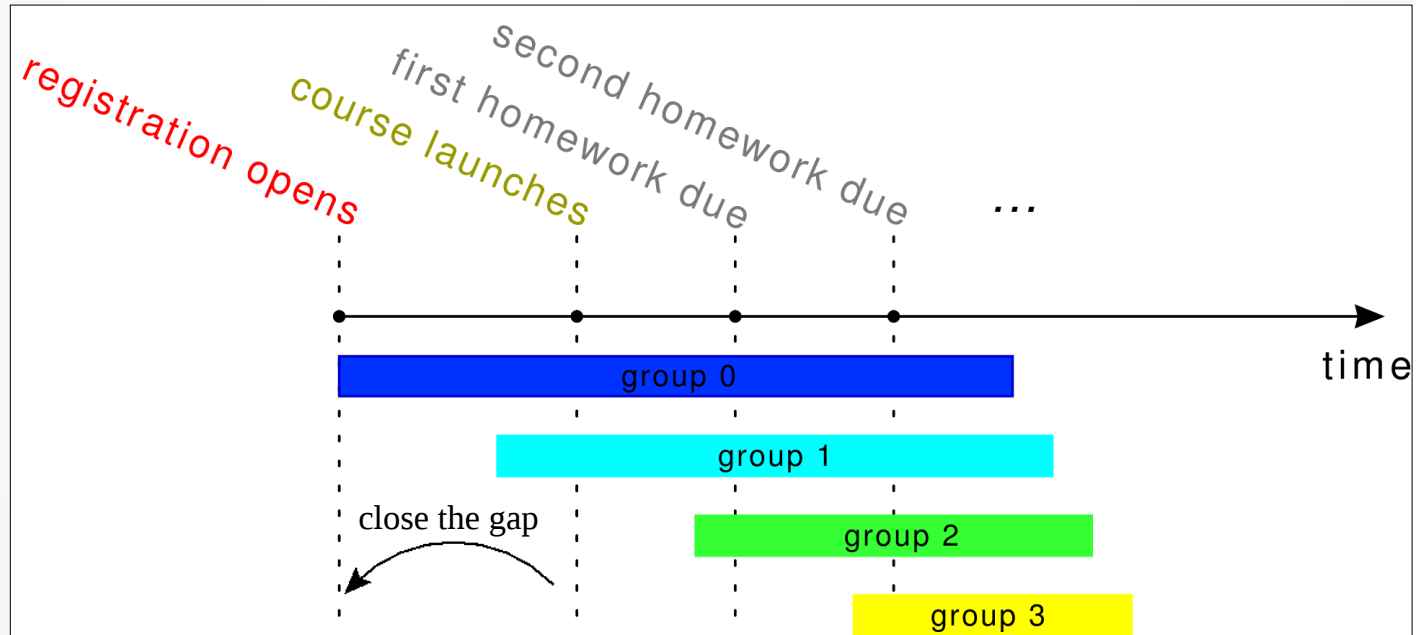


Current timeline



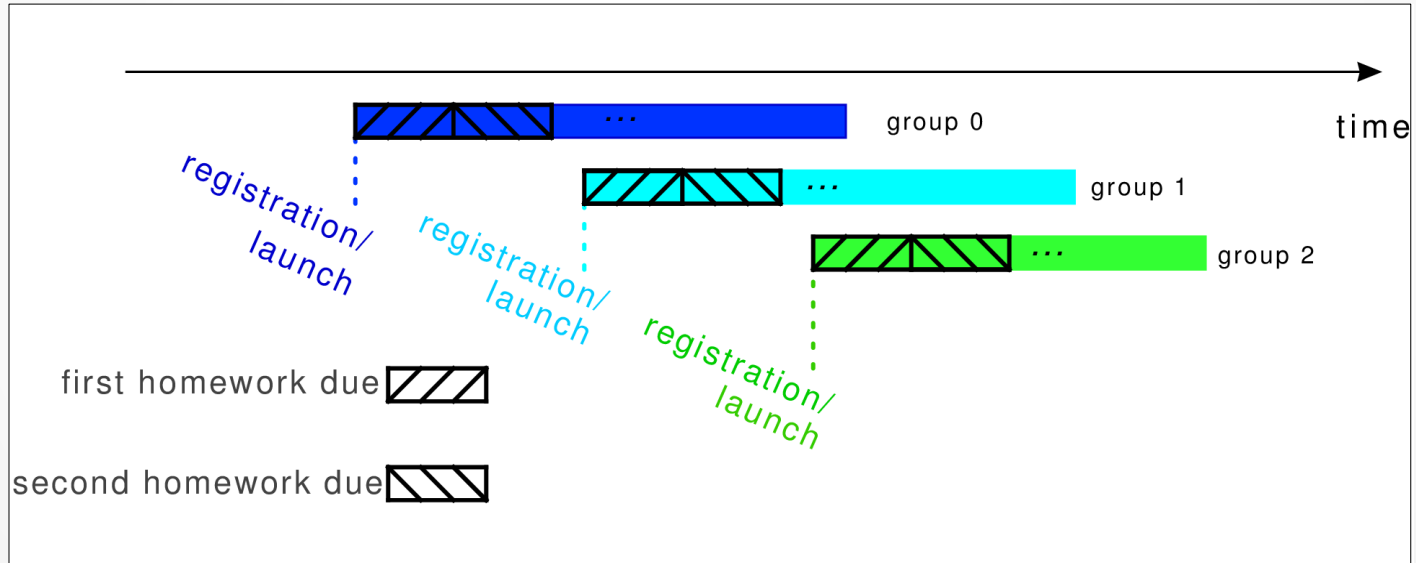
How can one overcome
this problem?

Current timeline



How can one overcome
this problem?

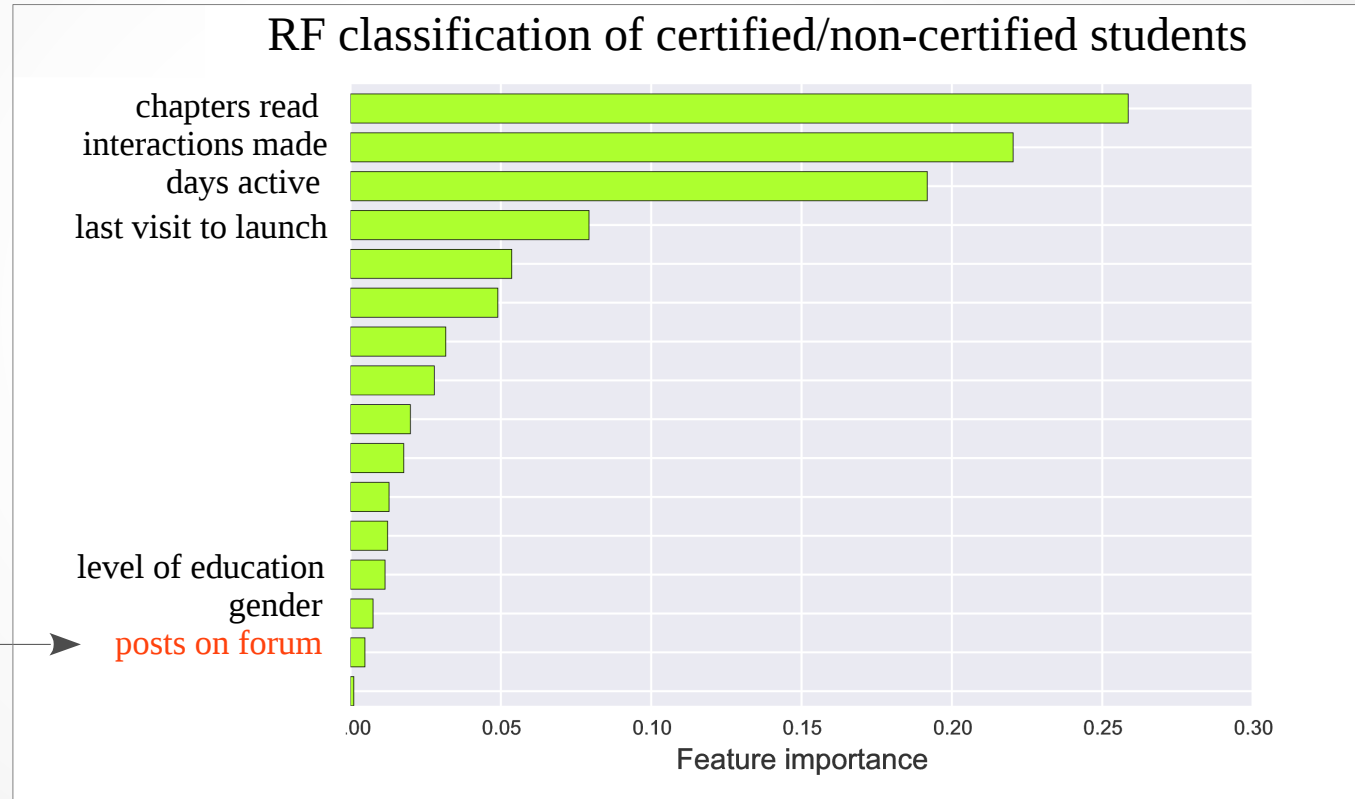
Asynchronous timeline



Is communication important?

- Asynchronous timeline interrupts communication among different groups of students.

- However, communication has negligible importance.

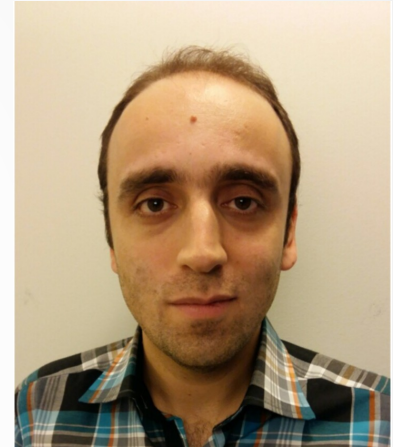
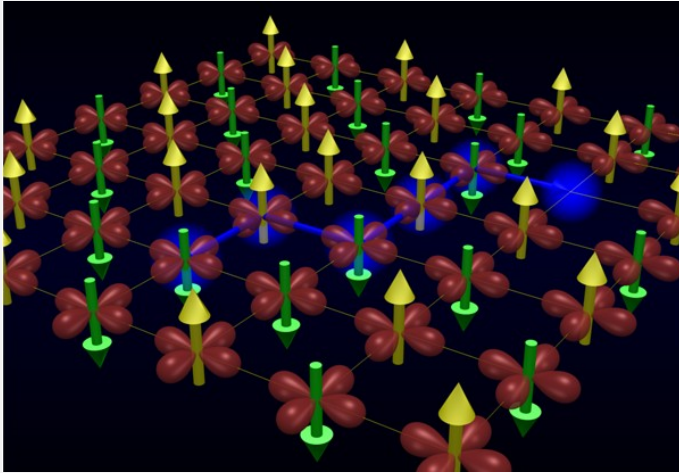




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Hadi Ebrahimnejad

Holes in magnetic materials

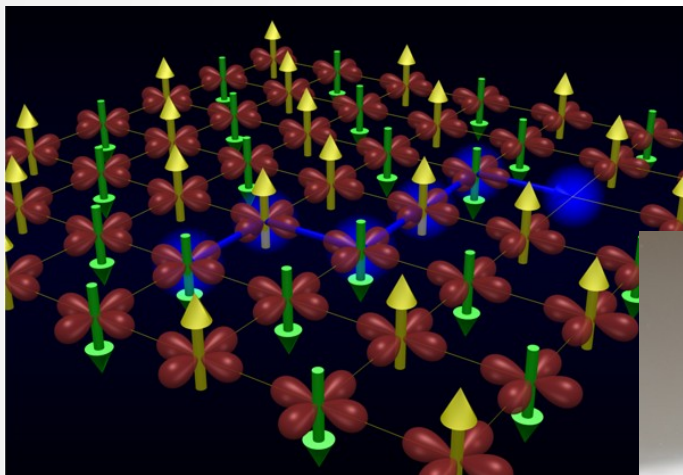




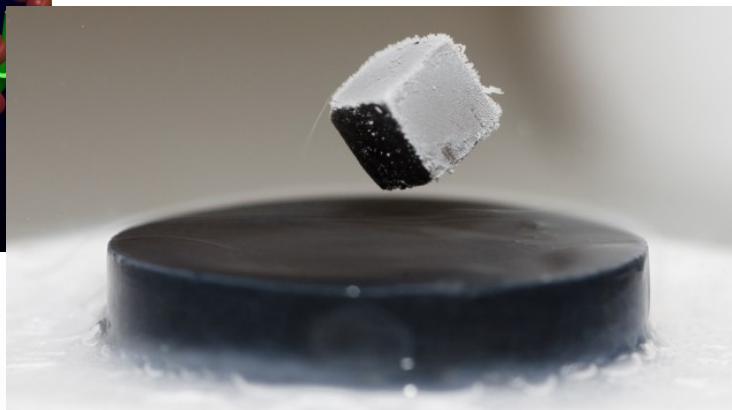
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Holes in magnetic materials



High-temperature superconductors

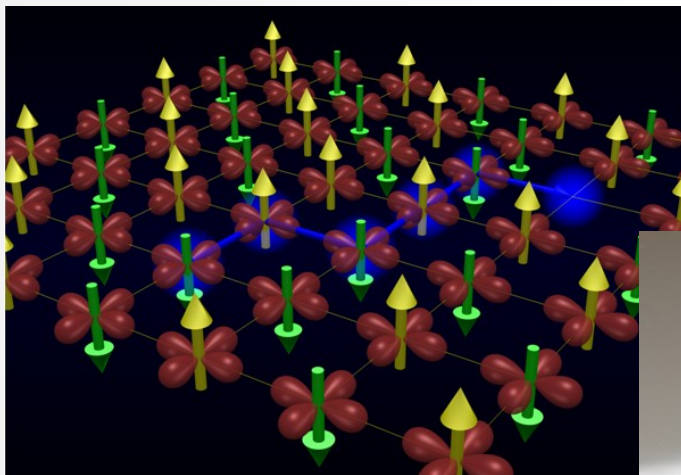




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Holes in magnetic materials



High-temperature superconductors



nature
physics

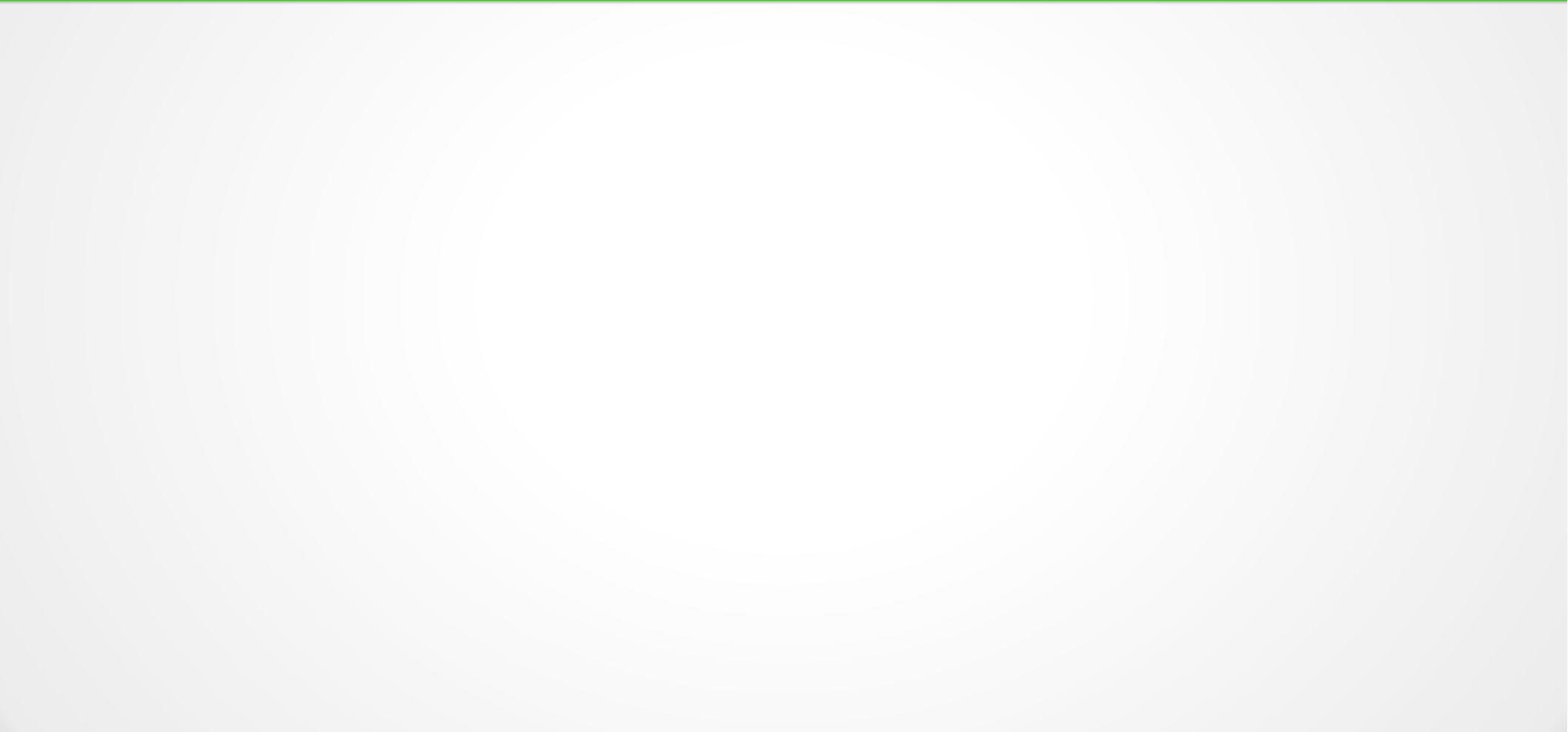
ARTICLES

PUBLISHED ONLINE: 19 OCTOBER 2014 | DOI: 10.1038/NPHYS53130

The dynamics of a doped hole in a cuprate is not controlled by spin fluctuations

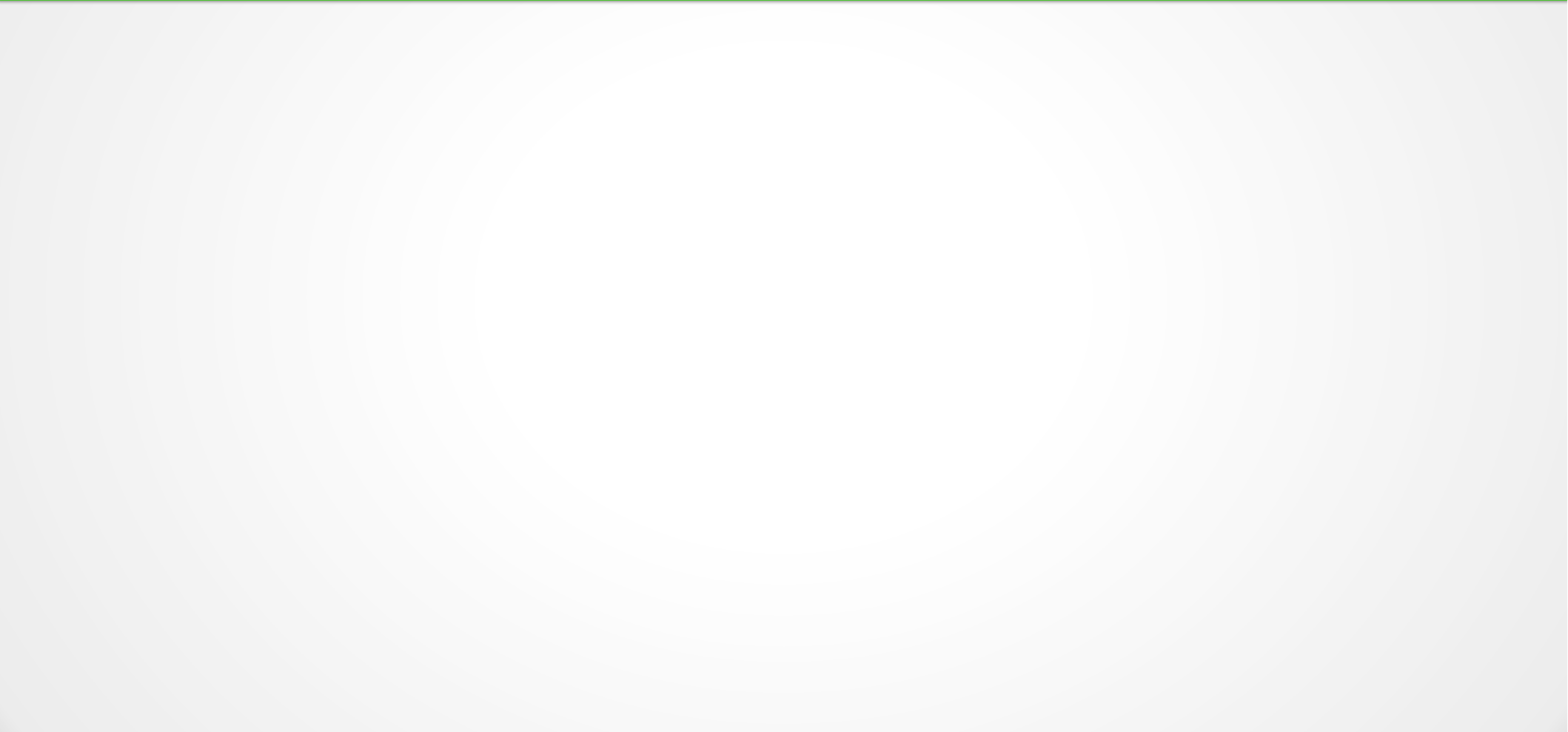
Hadi Ebrahimnejad¹, George A. Sawatzky^{1,2} and Mona Berciu^{1,2*}

Understanding what controls the dynamics of the quasiparticle that results when a hole is doped into an antiferromagnetically ordered CuO_2 layer is the first necessary step in the quest for a theory of the high-temperature superconductivity in cuprates.



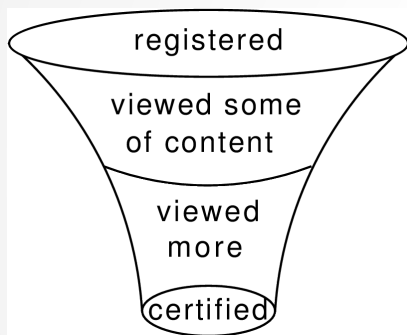
Summary

- Course timelines need to be synchronized with student registration:
 - Current solid timelines are against open design of online courses.
- 'Gender, age and level of education' have little relevance to 'certification'.
- 'Certification' should not be the focus in online courses:
 - 73% 'viewed the course content' vs 4% 'certified'



Predicting student churn

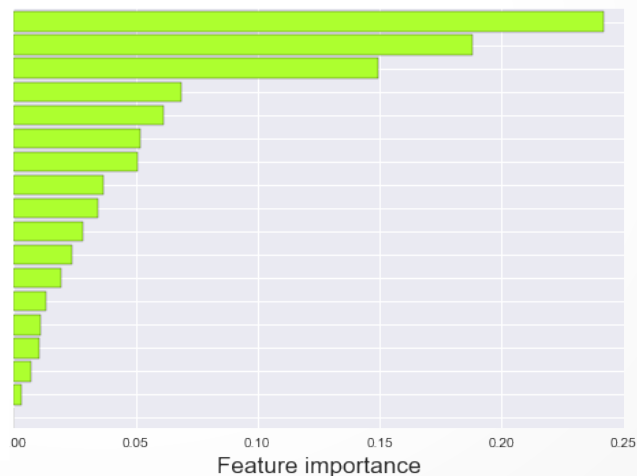
Data is aggregated from a series of 17 online courses offered in 2012-2013 by Harvard & MIT on *edX* (445000 active registrants).



Chapters read
Days active
Interactions
Videos played

Course length
Age
Instructor
Courses registered
Level of education
Gender
Posts on forum

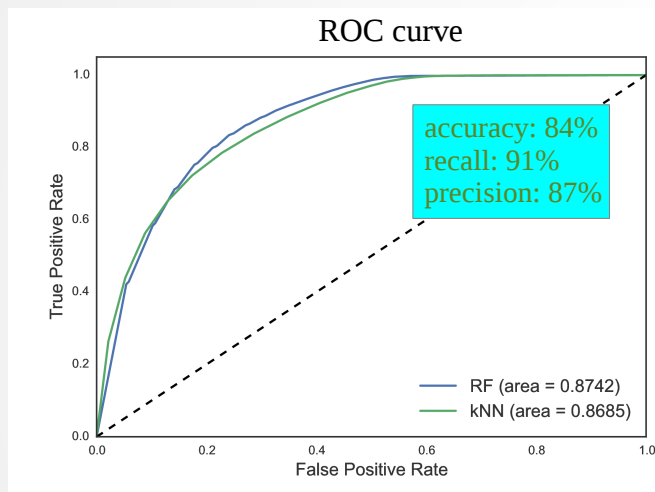
Can we construct a churn predictor for student certification?



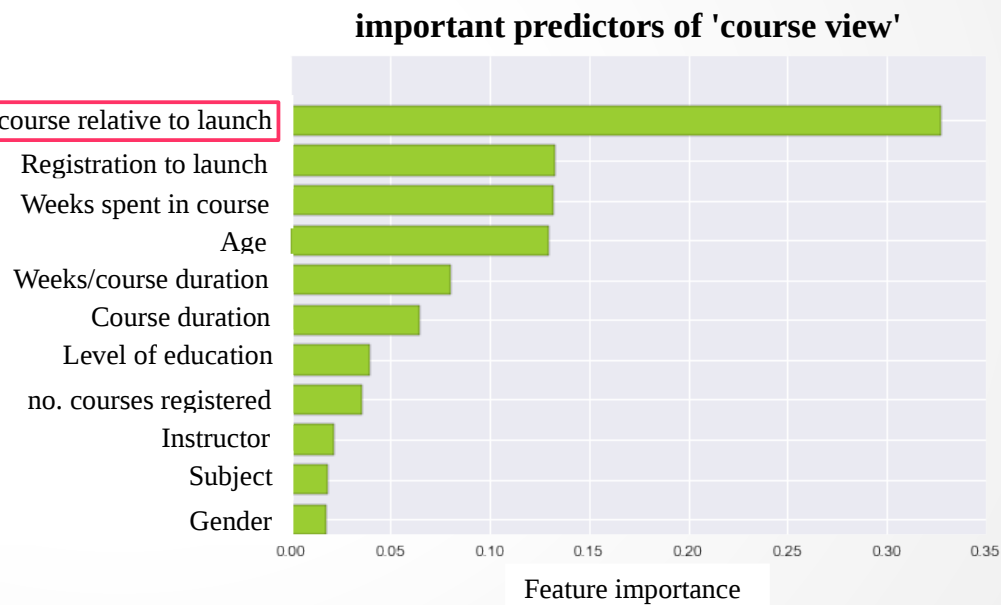
accuracy: 97%
recall: 97%
precision: 99%

RF classification of a balanced population

Predicting 'course view'

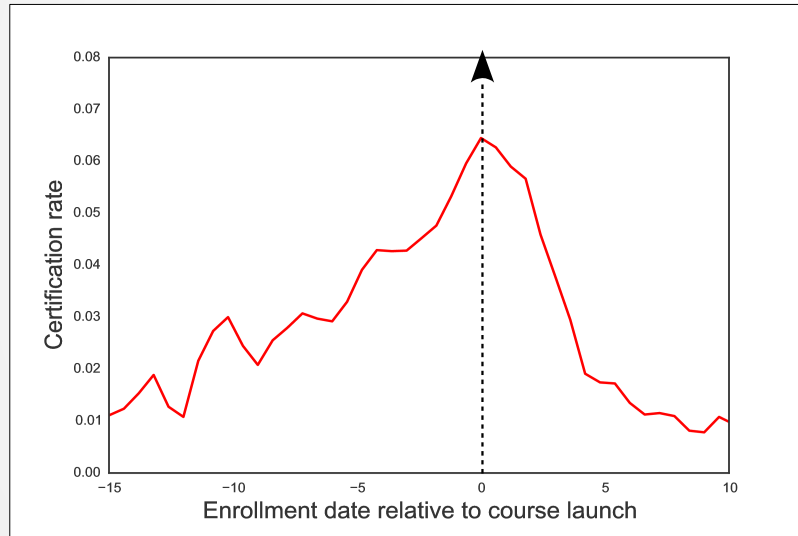


Last visit to course relative to launch



Effect of enrollment date

Certification rate rapidly declines after course launch.



	Before course launch	After course launch	Overall
Registration	48%	52%	100%
Certification rate	5.3%	2.6%	3.9%
Course view rate	65%	80%	73%

Thinking in terms of probabilities

