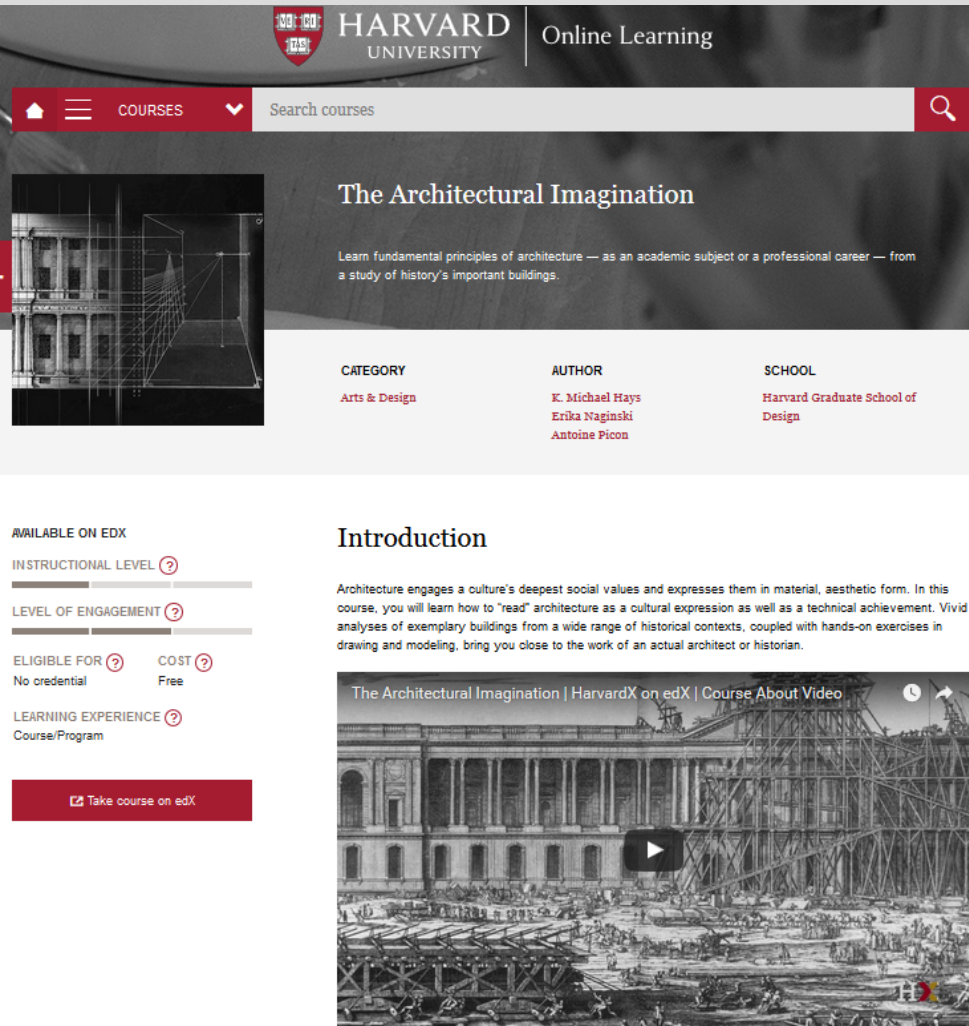


# Lessons from HarvardX

## 哈佛X平台經驗分享



**HARVARD UNIVERSITY** Online Learning

COURSES Search courses

### The Architectural Imagination

Learn fundamental principles of architecture — as an academic subject or a professional career — from a study of history's important buildings.

CATEGORY	AUTHOR	SCHOOL
Arts & Design	K. Michael Hays Erika Naginski Antoine Picon	Harvard Graduate School of Design

AVAILABLE ON EDX

INSTRUCTIONAL LEVEL ?

LEVEL OF ENGAGEMENT ?

ELIGIBLE FOR ? COST ?  
No credential Free

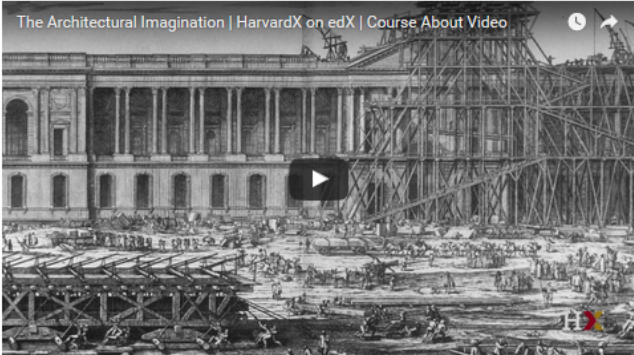
LEARNING EXPERIENCE ?  
Course/Program

Take course on edX

### Introduction

Architecture engages a culture's deepest social values and expresses them in material, aesthetic form. In this course, you will learn how to "read" architecture as a cultural expression as well as a technical achievement. Vivid analyses of exemplary buildings from a wide range of historical contexts, coupled with hands-on exercises in drawing and modeling, bring you close to the work of an actual architect or historian.

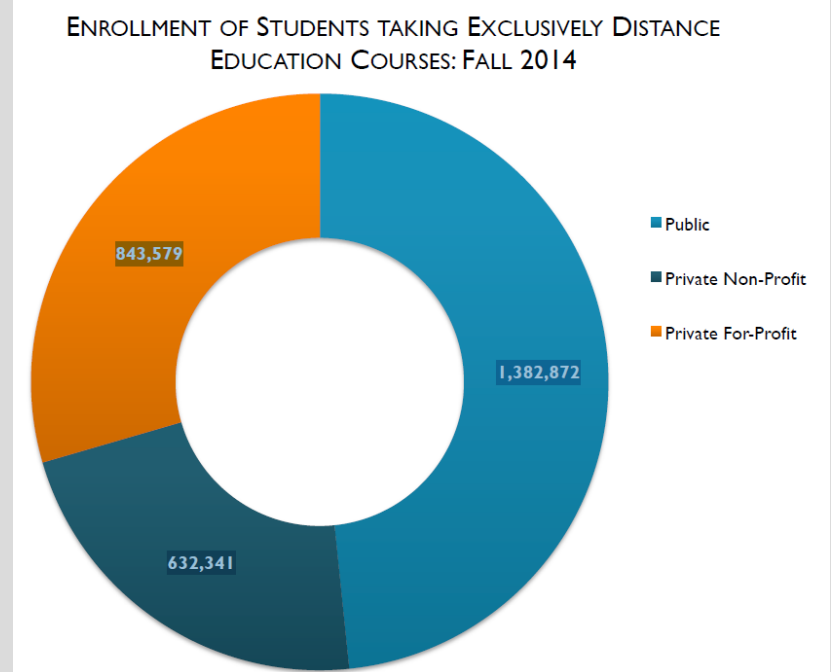
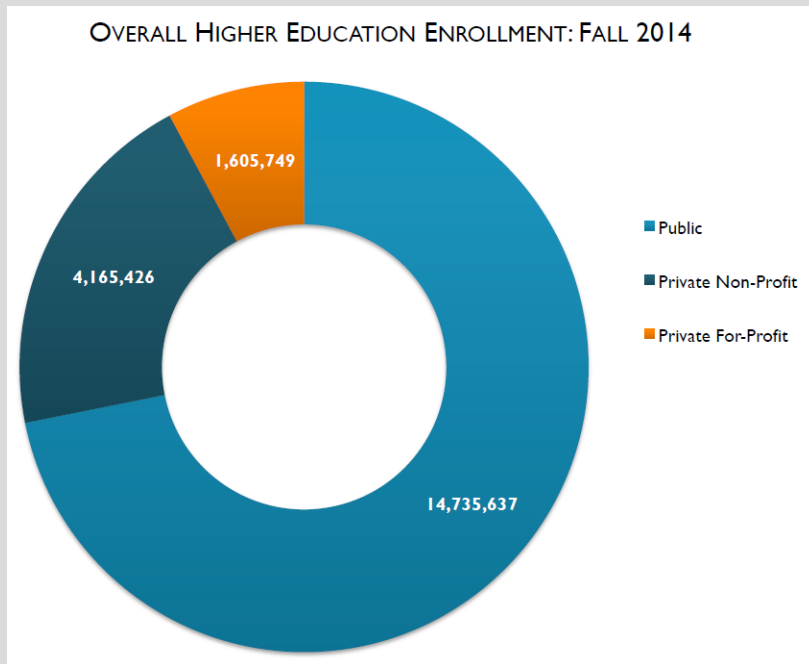
The Architectural Imagination | HarvardX on edX | Course About Video



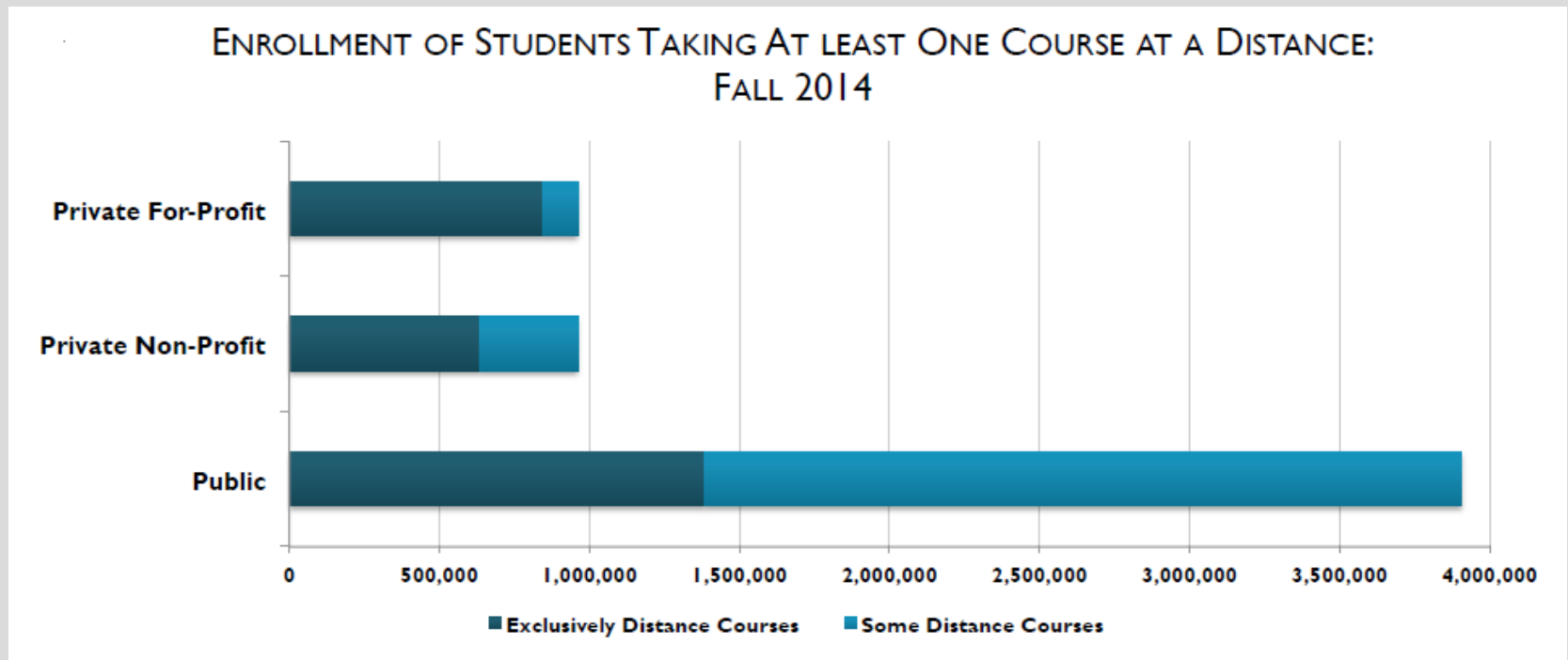
# US higher education

**Total Enrollments**  
**~21 million**

**Distance Only Enrollments**  
**~3 million**



- 27% of public institution students took at least one distance course.
- 23% of private non-profit students took at least one distance course.
- 60% of private for-profit students took at least one distance course.



# Massive Open Online Courses (MOOCs) are different from traditional online learning

The image is a screenshot of the edX website's course catalog. At the top, the edX logo is on the left, and navigation links for 'Courses', 'How It Works', 'Schools & Partners', and 'About' are in the center. A search bar on the right contains the text 'I want to learn about...'. Below the navigation is a large banner image of a Harvard University building. The main heading is 'HarvardX', followed by the text 'Free online courses from Harvard University'. A paragraph describes Harvard University's commitment to excellence and global impact. Below this is a 'See more' link. A section titled 'Harvard University MOOCs' explains that users can browse free courses and choose to receive a verified certificate for a fee. The main content area displays a grid of course cards. Each card features a representative image, the course title, ID, start date, and a 'VERIFIED' badge with a checkmark icon. The courses shown are: 1. 'Lessons from Ebola: Preventing the Next Pandemic' (PH557x, starts Dec 3, 2015). 2. 'Data Analysis for Life Sciences 3: Statistical Inference and Modeling for High-throughput Experiments' (PH525.3x, starts Dec 15, 2015). 3. 'The Ancient Greek Hero in 24 Hours' (HUM2x, starts Jan 6, 2016). 4. 'China and the Modern World' (HLS2X, part of the XSeries Program). 5. 'China: Civilization and Future' (HLS2X). 6. 'Contract Law: From Trust to Promise to Contract' (HLS2X). 7. 'Data Analysis for Life Sciences 4: High-Dimensional Data Analysis' (PH525.4x). 8. 'PH556X: Practical Improvement Science in Health Care: A Roadmap for Getting Results' (PH556X).

edX Courses ▾ How It Works ▾ Schools & Partners About ▾

I want to learn about... 🔍

## HarvardX

Free online courses from Harvard University

Harvard University is devoted to excellence in teaching, learning, make a difference globally. Harvard faculty are engaged with teaching. The University has twelve degree-granting Schools in addition to its

Established in 1636, Harvard is the oldest institution of higher education

[See more](#)

### Harvard University MOOCs

Browse free online courses in a variety of subjects. Harvard University choose to receive a verified certificate for a small fee. Select a course

**China and the Modern World**  
Learn about China's past, present, and future.

**China: Civilization and Future**  
Learn about China's past and future.

HarvardX  
PH557x  
**Lessons from Ebola: Preventing the Next Pandemic**  
Current  
Starts: December 3, 2015

HarvardX  
PH525.3x  
**Data Analysis for Life Sciences 3: Statistical Inference and Modeling for High-throughput Experiments**  
Starting Soon  
Starts: December 15, 2015 - Self-Paced

HarvardX  
HUM2x  
**The Ancient Greek Hero in 24 Hours**  
Starting Soon  
Starts: January 6, 2016

HarvardX  
HLS2X  
**Contract Law: From Trust to Promise to Contract**

HarvardX  
PH525.4x  
**Data Analysis for Life Sciences 4: High-Dimensional Data Analysis**

HarvardX  
PH556X  
**PH556X: Practical Improvement Science in Health Care: A Roadmap for Getting Results**



Courses

Find online courses and a wide range of related learning content from across Harvard's schools, initiatives, and programs.

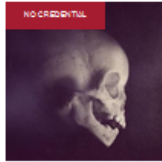
Filtering By: ARTS & DESIGN HISTORY HUMANITIES RELIGION & SPIRITUALITY Clear All

SORT BY

Just Added

FILTER BY

- Category
  - ARTS & DESIGN
  - BUSINESS & MANAGEMENT
  - COMPUTER SCIENCE
  - DATA SCIENCE
  - ECONOMICS & FINANCE
  - EDUCATION & ORGANIZATIONAL DEVELOPMENT
  - ENVIRONMENTAL SCIENCES
  - GOVERNMENT, LAW & POLITICS
  - HISTORY
  - HUMANITIES
  - MATHEMATICS & DATA ANALYSIS
  - MEDICINE & PUBLIC HEALTH
  - RELIGION & SPIRITUALITY
  - SCIENCE & ENGINEERING
  - SOCIAL SCIENCE
- Eligible for
- Platform
- Cost
- Learning Experience
- Instructional Level
- Level of Engagement



NO CREDITAL  
**Hamlet's Ghost**  
An exploration of the haunting figure at the heart of one of William Shakespeare's most famous plays.

Free edX



NO CREDITAL  
**Masterpieces of World Literature**  
Embark on a global journey to explore the past, present, and future of World Literature.

Free edX



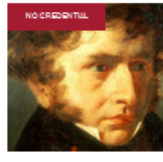
PROVIDE CREDIT(S)  
**ChinaX Book Club: Five Novelists, Five Novels, Five Views of China**  
HarvardXPLUS: Embark on a literary endeavor that explores the dynamics of contemporary China.

Paid HarvardXPLUS



PROVIDE CREDIT(S)  
**Masterpieces of World Literature**  
HarvardXPLUS: Embark on a global journey to explore the past, present, and future of World Literature.

Paid HarvardXPLUS



NO CREDITAL  
**First Nights: Berlioz's Symphonie Fantastique and Program Music in the 19th Century**  
Learn about Hector Berlioz's Symphonie Fantastique, an iconic Romantic symphony that ushered in an era of narrative "program music."

Free edX



NO CREDITAL  
**ChinaX**  
China's past, present, and future through history, geography, philosophies, literature, politics, economy, art, and ecology.

Free edX



NO CREDITAL  
**World Religions Through**



NO CREDITAL  
**Visualizing Japan**



NO CREDITAL  
**Judaism Through Its**

Expand your knowledge

Study online or on campus, for credit or noncredit, through Harvard's Division of Continuing Education.

Go to edX.org

Or go to <http://online-learning.harvard.edu/>

Sign up for any HarvardX course, for free

HarvardX develops premium open online learning experiences that:

- **REACH** global learners
- Enhance on campus **RESIDENTIAL** teaching and learning
- Create opportunities for learning sciences **RESEARCH**

## **REACH:**

The HarvardX program and courses—offered by dozens of educational institutions and teacher networks across the globe—connect and extend learning around the world.

## **RESIDENTIAL:**

HarvardX content and tools are being re-used in over twenty degree and professional education courses and helping upgrade University capabilities to benefit on campus learning.

## **RESEARCH:**

HarvardX course data serves as the foundation for extensive research activities, including cross-institutional collaborations, over 100 articles and working papers, and new faculty research projects.

And a 4<sup>th</sup> goal: Reusability – making use of HarvardX content

## Our HarvardX Learner Community is...

**Massive**

**4.31M**

Registrations

**Diverse**

**252,455**

Learners who are  
Full-Time Working Professionals

**Global**

**65%**

Learners  
Outside the USA

**18,316**

Unique Learners Per Course

**35%**

Learners who self-identify as  
Teachers / Instructors

**193**

Countries Represented (all of them!)

**109,318**

Certificates Earned

**70%**

Learners who are  
Millenials

**654,623**

Learners in U.N. Developing Nations

---

**Read our reports.**

---

**Read our  
peer-reviewed publications.**

---

**Use our data.**

---

## Learning @ HarvardX

**Activity**

**702.8M**

Clicks

**Time**

**6.70M**

Learner Hours

**Course**

**133**

Course Offerings

**46.5M**

Problems Attempted

**1.30M**

Learner Hours Spent on Problems

**34**

Courses in Humanities, History, Religion,  
Design and Education

**118.3M**

Videos Played

**486,212**

Learner Hours Spent on Forums

**15**

Courses in Government and Health &  
Social Sciences

*Last Updated*

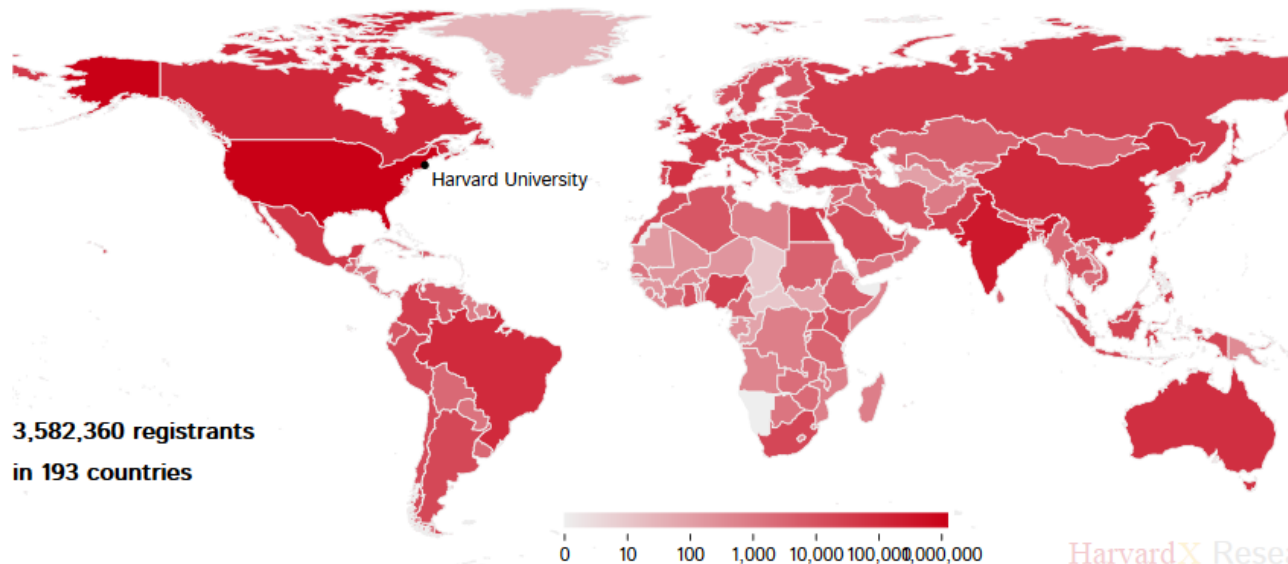
2016-07-12 21:31:06

HOME / RESEARCH / HARVARDX INSIGHTS /



## World Map of Enrollment

**All HarvardX Offerings (All Time)**  
Estimated Worldwide Registration as of July 3, 2016



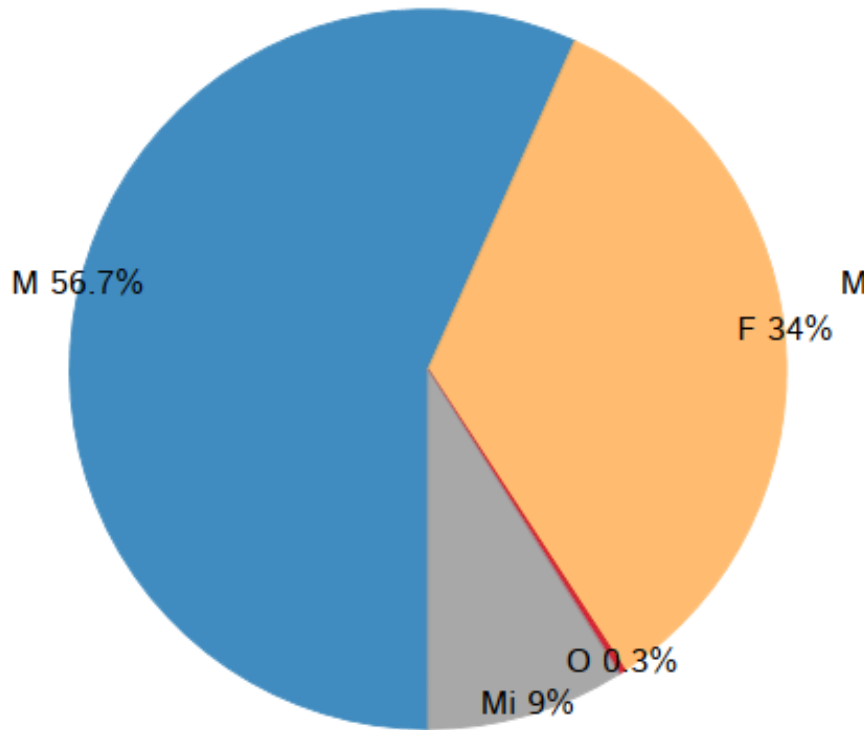
4.3 million registrations  
(including those without country identification)  
65% outside of the US



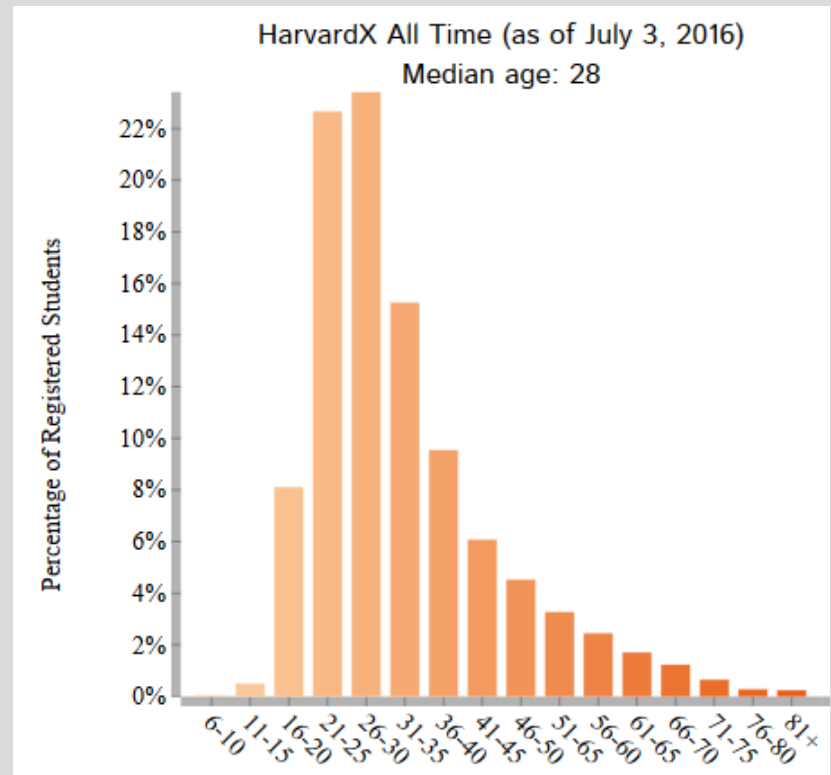
# Education:

All HarvardX registrants (as of July 3, 2016)% with Bachelor's or greater: 69.6%

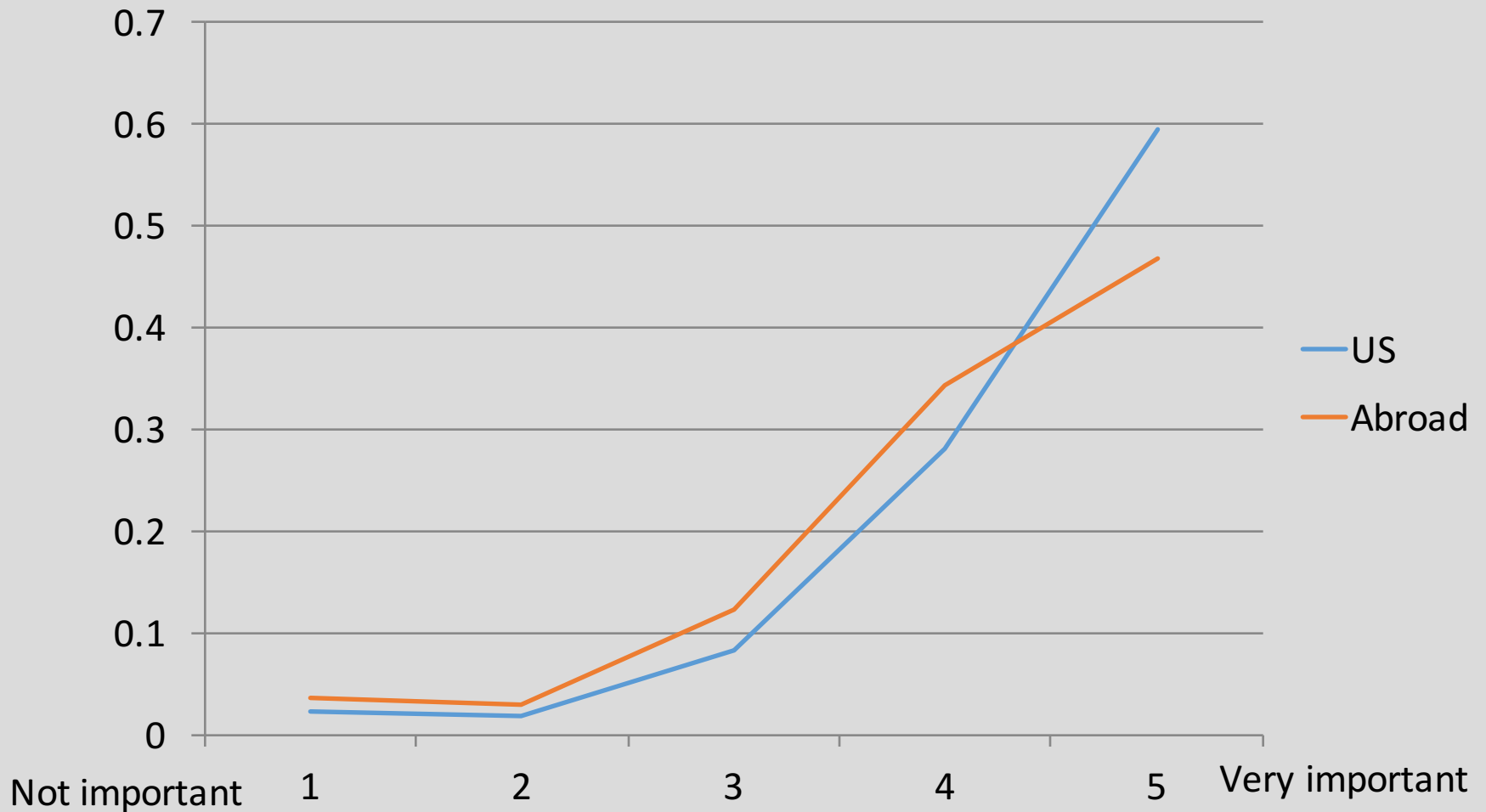
## Gender composition



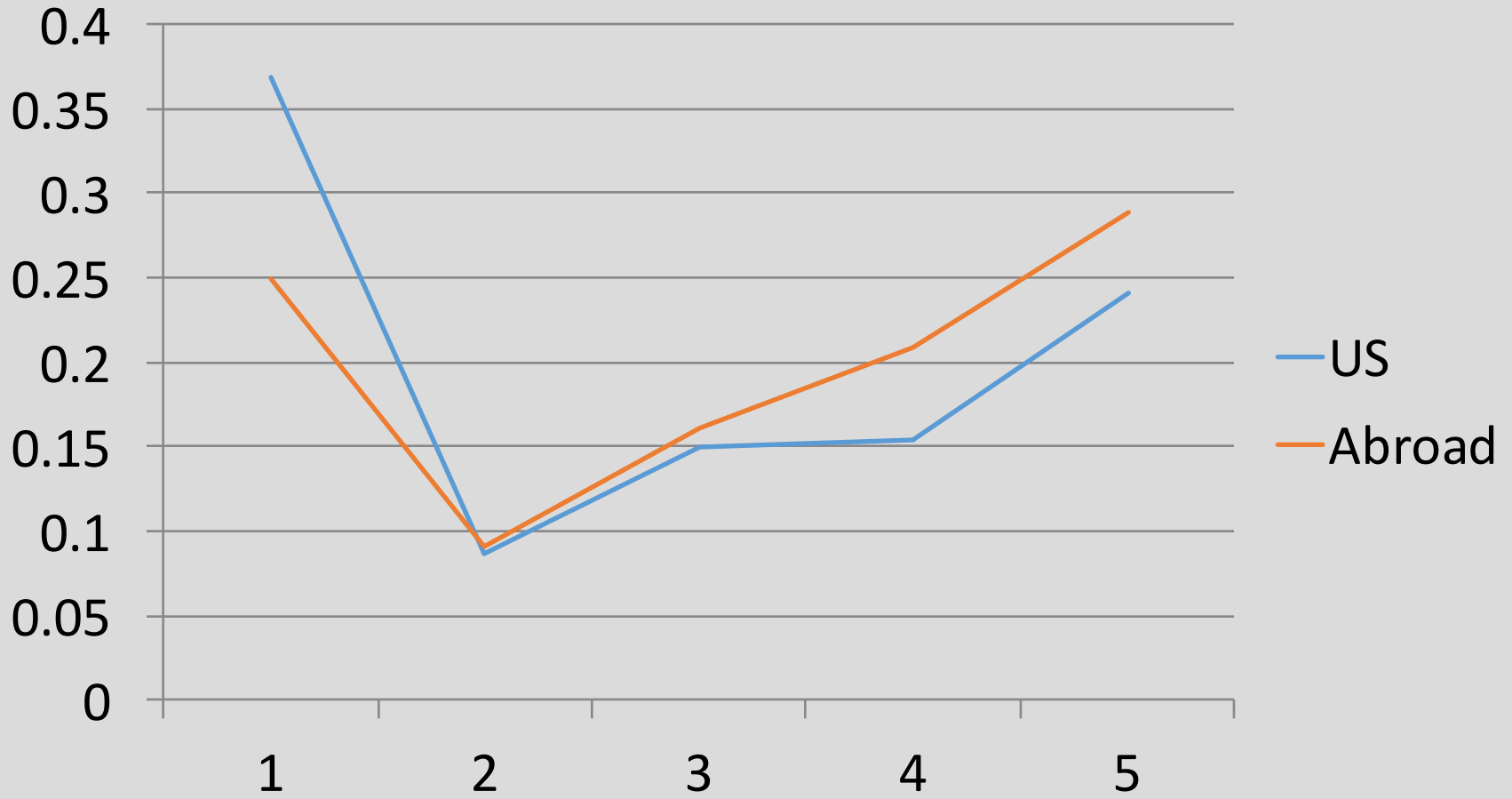
## Age composition



# Importance of Lifelong Learning

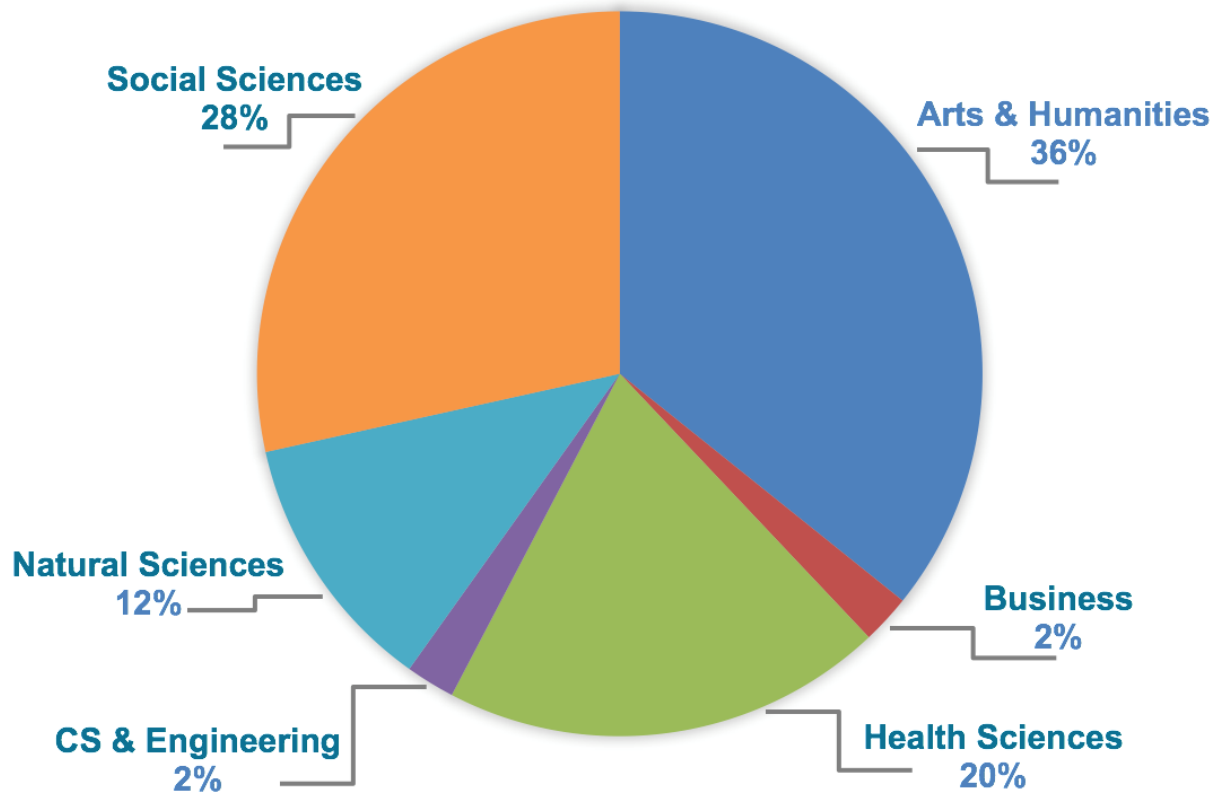


# How important is advancing my career?



# The HarvardX Curriculum: Liberal Arts and Sciences

## Courses by Discipline



# What we have learned:

- There is a world wide audience for the liberal arts because there is a world-wide audience for life-long learning
- That audience is young
- But mainly not in higher education at the moment

We want to help life-long learners continue to learn

▶ [Course Introduction](#)

▶ [Week 1 - Molecules, Moles, Flavor, and pH](#)

▶ [Week 2 - Energy, Temperature and Heat](#)

▶ [Week 3 - Phase Transitions](#)

▶ [Week 4 - Elasticity](#)

▶ [Candy!](#)

▼ [Week 5 - Diffusion and Spherification](#)

Weekly Overview

Week 5 - Diffusion and Spherification

Week 5 Lab

Lab due Oct 07, 2015 at 23:30 UTC

Week 5 Homework

Homework due Oct 07, 2015 at 23:30 UTC

Advanced Materials (not required)

[Extra Chef Materials](#)



JOSÉ ANDRÉS: STRAWBERRY



[Download video](#)

[Download transcript](#)


.srt ▼

# Michael Sandel: JusticeX

Help

- Lecture 3 - Utilitarianism: Jeremy Bentham
- Lecture 4 - Utilitarianism: J.S. Mill
- Quiz 1
- Lecture 5 - Libertarianism: Free Market Philosophy
- Lecture 6 - Libertarianism: Do We Own Ourselves?
- Lecture 7 - John Locke: Property Rights
- Lecture 8 - John Locke: Individual Rights and Majority Rule
- Lecture 7 & 8: Moral Dilemma and Poll #6  
Poll Response due Jan 15, 2016 at 13:00 UTC
- Lecture Video
- Self-Test
- Lecture 7 & 8 Discussion
- Lecture 9 - Markets and Morals: Military Service

## PROPERTY RIGHTS & BOSTON PARKING



### LECTURE 7 & 8 POLL (EXTERNAL RESOURCE) (1.0 / 1.0 points)

**Should people be allowed to place space holders in public parking spots where they dug their car out of the snow?**

- **A. Yes**

# Thomas Kelly: First Nights



- Courseware
- Course Info
- Discussion
- Progress
- Syllabus & FAQ
- Staff and Credits

- ▶ Pre-Course Survey
- ▶ A Short Performance
- ▶ Lesson 1 - Introduction
- ▼ Lesson 2: Musical Styles in Messiah
  - Musical Styles in Opera & Oratorio Quiz
  - Recitative Quiz
  - Choruses Quiz**
  - Songs/Arias Quiz
- ▶ Lesson 3: Performance by Harvard Baroque Chamber Orchestra
- ▶ Lesson 4: Dublin and the First Performance



## DUET CHORUSES

Duet Choruses  
Question 1  
Question 2





Anne Becker, HMS  
Paul Farmer, HMS  
Salmaan Keshavjee, HMS  
Arthur Kleinman, FAS

*Global Health: Case Studies  
from a Biosocial Perspective*



Course co-instructors are all physician-anthropologists with unique specializations.

Our **interdisciplinary** course combines anthropology, history, and medicine to solve global health problems. We are a team of 9 faculty from HMS, HSPH, FAS, together with **international experts (policy makers, healthcare workers and patients)**. Filming in Haiti & Rwanda, we challenge assumptions about rural hospitals in **low-income countries** and demonstrate what is really possible.

Filming in the field further reinforces the course's ethnographic philosophy.



# Karen L. Mapp, <sup>HGSE</sup>

## *Introduction to Family Engagement in Education*



Dialogic interviews inspire thoughtful discourse and generate unique learning moments.

Introduction to  
Family Engagement in Education

We conduct 35 interviews with subject matter experts, including academics at HGSE, HKS and, **school leaders, teachers, parents, and students**. Professor Mapp's expertise is in high demand nationwide; this MOOC allows her to **expand the reach of her teaching**. Our media is also used in her residential HGSE Program in **Professional Development**.



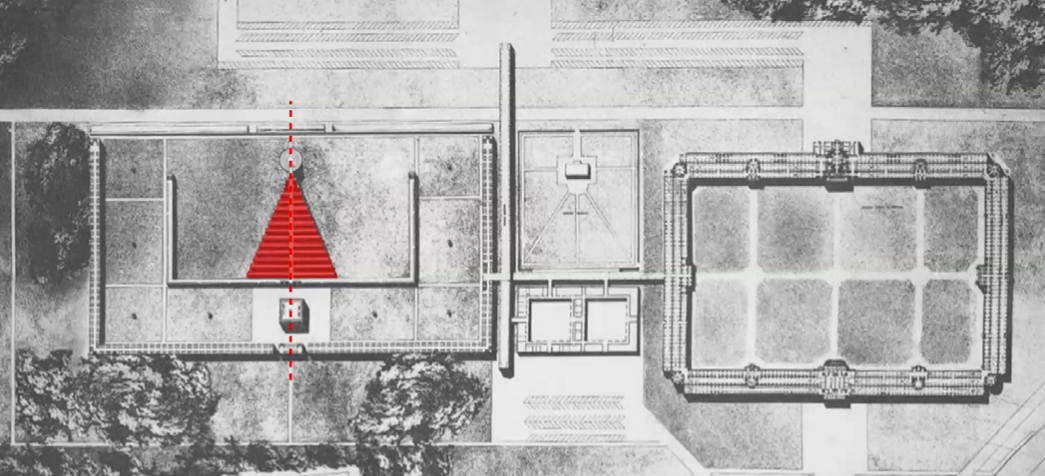
Filming in schools brings voices from the field into the MOOC learning experience.

# Michael Hays, GSD

## *The Architectural Imagination*



Filming faculty in environments referenced in course curriculum provides learners context.

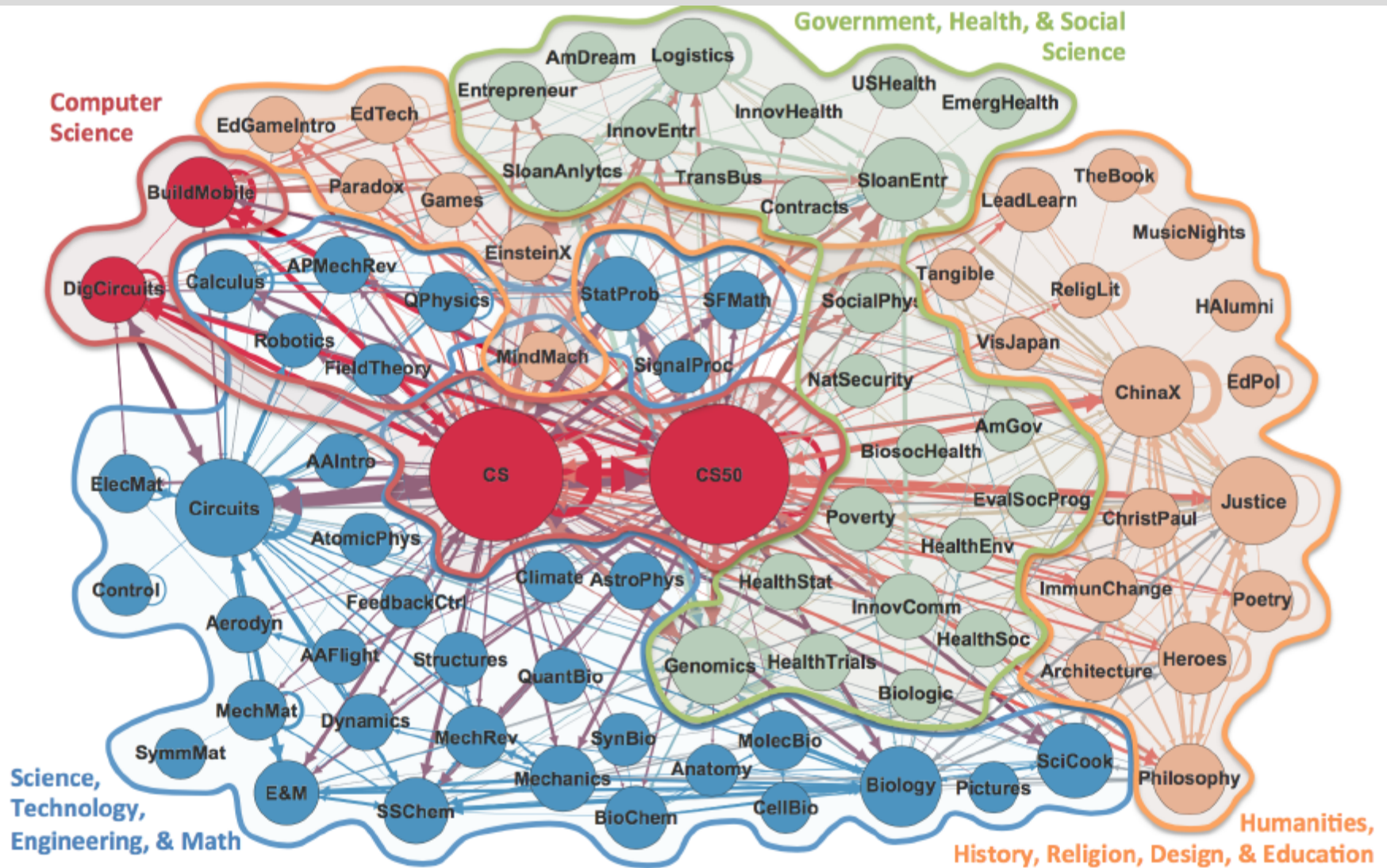


Our course originates as a **Residential Bootcamp** for incoming graduate students, and addresses the need to provide materials long distance. The first 2 course versions ran as **hybrid courses on campus**. Learner input and faculty revisions are used to develop the MOOC for launch in early 2017.



Exposing campus resources provides online access to Harvard worldwide.

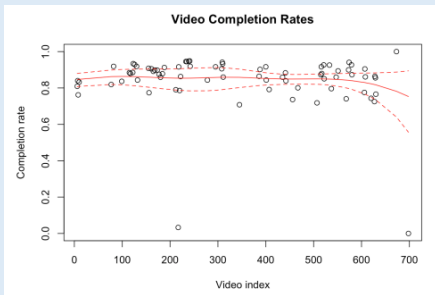
# The HarvardX-MITx Course Network



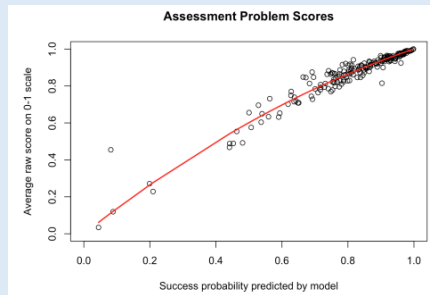
Note: Larger nodes connect more participants to other courses. Central nodes connect to more courses. Proximal nodes have greater flow between them than distal nodes. Arrows indicate the direction of flow, with weights corresponding to the amount of flow.<sup>3</sup> Estimated from 743K participants who participated in multiple courses.

# RESEARCH

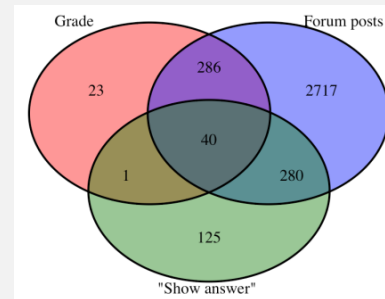
Which videos have low completion rates?



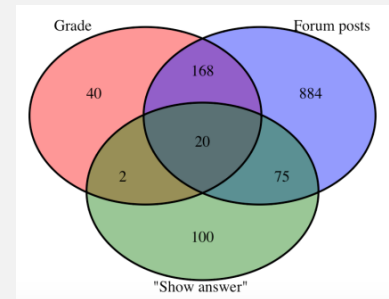
Which assessment problems have strange scores?



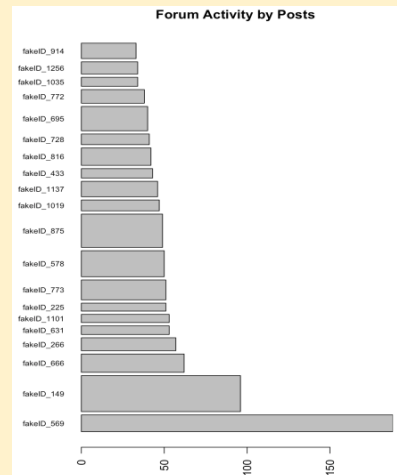
Which students go above expectations?



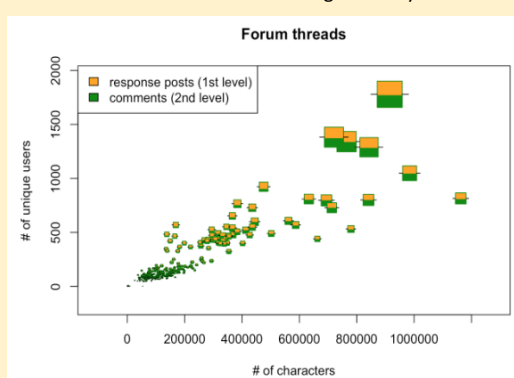
Which students go above and beyond?



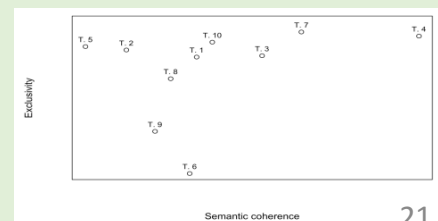
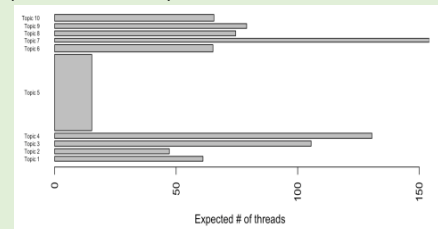
Who is an active forum user?



Which forum threads have high activity?



Which topics can we discern and how prevalent are they?



# FOCUS ON RESEARCH:

## HarvardX Online Learner Engagement Increasing

As HarvardX continues to offer the greatest breadth and depth of liberal arts and sciences courses anywhere online, HarvardX learners continue to interact more deeply with each other and course material.

Learner engagement increased during HarvardX's Year 3 (June 2015–May 2016) compared to HarvardX's Year 2 (June 2014–May 2015) in a number of key areas:



Discussion forum reads –

34% ↑



Discussion forum posts –

44.5% ↑



Attempts to solve problems (assessments) –

136.6% ↑



HarvardX learners are engaging more, with a richer array of content (discussions, video, and assessments), than ever before.”

—Dustin Tingley, Faculty Director,  
Vice Provost for Advances in Learning (VPAL)  
Research Team, Harvard University

Visit **HarvardX Insights** at [harvardx.harvard.edu/insights](http://harvardx.harvard.edu/insights) for additional data on learners compiled by VPAL research.

# VIDEO, ILLUSTRATIONS, CLAYMATION

- "Fundamentals of Neuroscience" with Prof David Cox (FAS)
- [Neuroscience-Virtual\\_to\\_Phys\\_to\\_Virtual\.\\_MCB80X\\_Claymation-HD.mp4](#)
- --- Review of course animations and additional animations can be found at:
- [http://www.itnicethat.com/articles/fundamentals-of-neuroscience?utm\\_content=buffer3fb4f&utm\\_medium=social&utm\\_source=twitter.com&utm\\_campaign=buffer](#)
- "Contracts" with Prof Charles Fried (HLS) trailer
- [https://www.edx.org/node/3911#.VFeYsVxtAWQ](#)

# Reusability

## HarvardDART Digital Assets for Reuse in Teaching

Search bar containing the text "gravity" and a "Search" button.

VPAL Research HUIT HarvardX





Search bar containing the text 'gravity' and a 'Search Again' button.

View and filter all 97 search results with the term gravity.

Videos (35) Assessments (30) HTML Pages (32)

Search Results

The Equivalence Principle

HarvardX, The Einstein Revolution (EMC2x) edX Course Link

is if there were no gravity because everything...could cancel gravity-- then gravity in a certain way...might be a theory of gravity. One would be the

Preview Video and Add to Canvas buttons.

Introduction to Parallelism

HarvardX, Poetry in America: The Poetry of Early New England (AI12.1x) edX Course Link

momentum, sense of gravity, reasonableness

Preview Video and Add to Canvas buttons.

Introduction to Parallelism

HarvardX, Poetry in America: The Poetry of Early New England (AmPoX.1) edX Course Link

momentum, sense of gravity, reasonableness

Preview Video and Add to Canvas buttons.

Video: The Wobble Method

HarvardX, Super-Earths and Life (SPU30x) edX Course Link

Courses with the highest number of results for your search gravity.

Grid of course cards showing match counts and course details for 'Super-Earths and Life' and 'The Einstein Revolution'.

28 HarvardX courses had matches for your query.

China**X**

The goal of ChinaX is to help learners to understand China's historical experience, its patterns of philosophy and religion, and its social and political thought. These themes are discussed in order to understand China in the twenty-first century and as a great world civilization that developed along lines different from those of the Mediterranean.

Two Examples:

The changing map of China over  
time

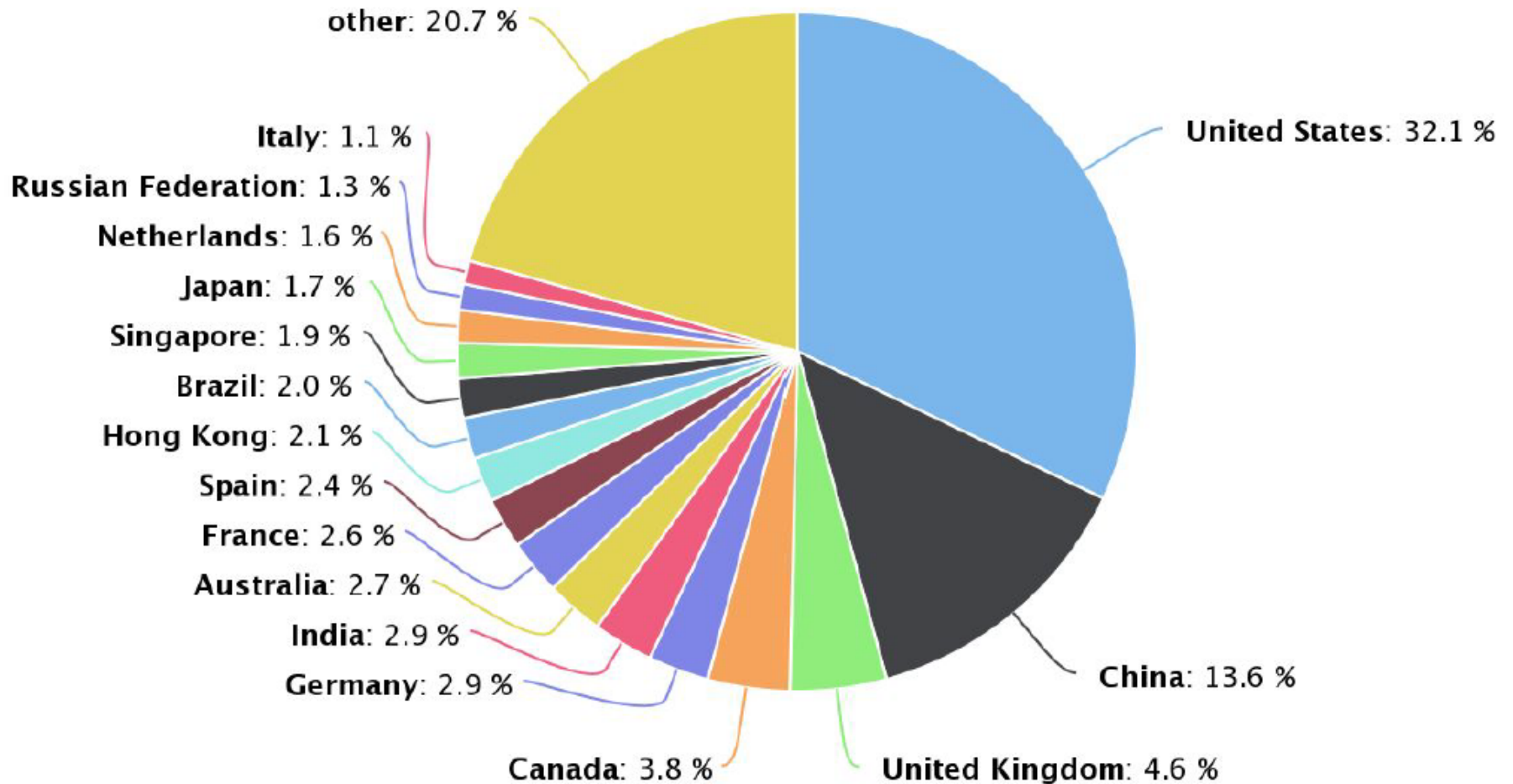
Chinese Literature

*Number of Unique Learners by Participation Type per Module*

Module	Net registered	Viewed	Explored	Certified	Verified ID *	Certified & Verified	Male	Female
ChinaX 1	58,283	45,618	13,623	3,691	0	0	39,957	29,804
ChinaX 2	33,915	12,727	5,419	2,642	0	0	23,625	16,504
ChinaX 3	32,547	7,320	4,014	2,227	0	0	20,931	15,244
ChinaX 4	33,636	6,656	2,535	1,788	0	0	21,092	15,497
ChinaX 5	33,246	5,162	2,970	1,685	0	0	20,576	14,469
ChinaX 6	33,882	5,364	2,835	1,637	0	0	20,768	15,010
ChinaX 7	33,863	4,583	2,640	1,505	71	63	19,544	14,199
ChinaX 8	34,323	4,411	2,563	1,528	67	62	19,424	14,059
ChinaX 9	35,054	4,126	1,809	1,441	65	60	19,650	14,112
ChinaX 10	36,732	5,492	1,204	1,258	85	73	20,628	14,897

\*the ID verified certificate option only became available in ChinaX 7, thus the previous parts do not have any verified ID or certified & verified.

## ChinaX 1-10 on edX Viewers by Country



# ChinaX Participants (SW12.1x – SW12.10x)

China with Hong Kong, Macau, and Taiwan













#	Answer		Response ▲	%
8	<a href="#">Philosophy/Intellectual History</a>		300	63%
1	<a href="#">Art history</a>		235	49%
7	<a href="#">Literature</a>		214	45%
5	<a href="#">Law and Governance</a>		212	45%
6	<a href="#">Language (Mandarin)</a>		197	41%
4	<a href="#">Economics</a>		172	36%
3	<a href="#">Education</a>		160	34%
2	<a href="#">Business</a>		147	31%
10	<a href="#">Other</a>		127	27%
9	<a href="#">Public Health</a>		89	19%

Figure 9. Survey response on what “What topic(s) they would you like to learn more about on ChinaX”



The most famous part of  
ChinaX

# Leading through Learning

The common ground of HarvardX learners and the  
University

HarvardThe HarvardX logo consists of the word "Harvard" in a black serif font, followed by a stylized "X" where the left stroke is red and the right stroke is yellow.