

Tsunami in Education?

Massive Open Online Courses

What Should Cornell Do?



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MOOCS

- **Online Courses—not new**
 - Online universities (Phoenix)
 - Efforts by many universities
 - Including eCornell
 - Including Fathom (Columbia +), 2000, mixed free and pay
- **Open Courses—newer**
 - MIT's OpenCourseWare, Kahn Academy, TED talks
 - Several experiments by individual faculty members and universities
- **Massive—new**
 - First truly massive course—Thurn and Norvig (Stanford CS and Google) AI course with 160K enrolled in 2011

What is New?

- This online effort is different—it is being driven by faculty at top institutions
- Uses online delivery of content, online questions and answers by students and faculty (eg Piazza), peer grading: crowdsourcing
- Mix of for-profit and non-profit efforts—with free access and (sometimes) fee for certificates. Some open-source, some not.

Stanford's Free Online Courses

Coursera:

[Machine Learning](#) by Andrew Ng

[Cryptography](#) by Dan Boneh

[Introduction to Mathematical Thinking](#)
by Keith Devlin

[Writing in the Sciences](#) by Kristin Sainani

[Human-Computer Interaction](#) by Scott
Klemmer

[Organizational Analysis](#) by Daniel
McFarland

[Introduction to Logic](#) by Michael
Genesereth

[Probabilistic Graphical Models](#) by
Daphne Koller

[Algorithms: Design and Analysis, Part 2](#)
by Tim Roughgarden

Class2Go

[An Introduction to Computer Networks](#)
by Philip Levis and Nick McKeown

[Solar Cells, Fuel Cells, and Batteries](#) by
Bruce Clemens

Venture Lab

[Technology Entrepreneurship](#) by Chuck
Easley

[Designing a New Learning Environment](#)
by Paul Kim

[Finance](#) by Kay Giesecke


[Advanced Entrepreneurship](#) by Clint
Korver

[A Crash Course on Creativity](#) by Tina
Seelig

Some of the Ventures


- Coursera <https://www.coursera.org/>
- Udacity <http://www.udacity.com/>
- edX <https://www.edx.org/>
- Google Course Builder
<https://code.google.com/p/course-builder/>
- Minerva University <http://minervau.com/>
- 2Tor <http://2tor.com/>

Coursera

- For-profit, founded 2012
- 33 universities
- U.S. universities 

[Berklee College of Music](#)
[Brown University](#)
[California Institute of Technology](#)
[Columbia University](#)
[Duke University](#)
[Emory University](#)
[Georgia Institute of Technology](#)
[Johns Hopkins University](#)
[Mount Sinai School of Medicine](#)
[Ohio State University](#)
[Princeton University](#)
[Rice University](#)
[Stanford University](#)
[University of California, Irvine](#)
[University of California, San Francisco](#)
[University of Florida](#)
[University of Illinois at Urbana-Champaign](#)
[University of Maryland, College Park](#)
[University of Michigan](#)
[University of Pennsylvania](#)
[University of Pittsburgh](#)
[University of Virginia](#)
[University of Washington](#)
[Vanderbilt University](#)
[Wesleyan University](#)

Coursera

- For-profit, founded 2012
- 195 courses
- In 18 categories 
- Over one-million students

- [Biology & Life Sciences](#)
- [Computer Science: Artificial Intelligence, Robotics, Vision](#)
- [Computer Science: Systems, Security, Networking](#)
- [Economics & Finance](#)
- [Electrical and Materials Engineering](#)
- [Health and Society & Medical Ethics](#)
- [Information, Technology, and Design](#)
- [Medicine](#)
- [Physical & Earth Sciences](#)
- [Business & Management](#)
- [Computer Science: Programming & Software Engineering](#)
- [Computer Science: Theory](#)
- [Education](#)
- [Food and Nutrition](#)
- [Humanities and Social Sciences](#)
- [Mathematics](#)
- [Music, Film, and Audio Engineering](#)
- [Statistics, Data Analysis, and Scientific Computing](#)

Coursera: Humanities and Social Sciences

31 courses. Examples:

Modern & Contemporary American Poetry

- by Al Filreis from **University of Pennsylvania**

Aboriginal Worldviews and Education

- By Jean-Paul Restoule from **University of Toronto**

Writing in the Sciences

- by Kristin Sainani from **Stanford University**

Introduction to Sociology

- by Mitchell Duneier from **Princeton University**

Archaeology's Dirty Little Secrets

- by Susan E. Alcock from **Brown University**

Fantasy and Science Fiction: The Human Mind, Our Modern World

- by Eric Rabkin from **University of Michigan**

Princeton on Coursera

A History of the World since 1300

– by Jeremy Adelman

Algorithms

– by Robert Sedgewick, Kevin Wayne

Analytic Combinatorics

– by Robert Sedgewick

Computer Architecture

– by David Wentzlaff

Introduction to Sociology

– by Mitchell Duneier

Networks: Friends, Money, and Bytes

– by Mung Chiang

Statistics One

– by Andrew Conway

EdX

Established 2012 as a non-profit

MITx, HarvardX and BerkeleyX

MITx

3.091x Introduction to Solid State Chemistry

6.002x Circuits and Electronics

6.00x Intro to Computer Science and Programming

HarvardX

CS50x Introduction to Computer Science I

PH207x Health in Numbers: Quantitative Methods in Clinical
& Public Health Research

BerkeleyX

CS169.1x Software as a Service

CS188.1x Artificial Intelligence

Udacity

Beginning Courses (3)

Intro to Comp Sci, Intro Physics, Intro Stat

Intermediate Courses (8)

Advanced Courses (3)



Why?

- Educational mission of the university—educate the world for free?
- Positive impact on on-campus courses
- A revolution in education is happening
- Impact on secondary students and recruiting students

Cornell and MOOCs?

New committee to advise Cornell on MOOCs

- Kent Fuchs (Provost, co-chair)
- Eva Tardos (CS/IS, co-chair)
- David Easley (Economics, A&S)
- Steve Strogatz (MAE, Engineering + Math, A&S)
- Kavita Bala (Computer Science, CIS)
- Sean Nicholson (Policy Analysis and Management, HumEc)
- Laura Brown (Vice Provost for Undergraduate Education)

Issues/Questions

- Educational mission of the university—educate the world for free?
- What is the role of the brick and mortar university?
- Which audience should we cater to: Residential student? Virtual student? Prospective student?
- Short courses vs real courses?
- High production quality vs having many? Who pays (financial model)?