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23 – 26 September | Dublin, Ireland

# Disruptive Innovation in Higher Education

What might the future look like?

24<sup>th</sup> September, 2014

Brian Mulligan, Institute of Technology Sligo



# IT Sligo Online

- Since 2002
- >1200 online students
  - No funding!
- Award Winning!



# Are graduates prepared for the workforce?

- % of US academic officer who believe they are doing a good job at preparing students for employment.
- **96**
- % of business leaders who agree that graduates have the requisite skills for success in the workforce
- **11**

*Things need to change!*



# What can you NOT learn online?



"Before we start, let's all put on our masks."



*Click to continue!*



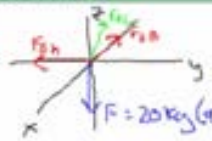


LIW Colleges EGR 202/MEC 201 - SPOB | Connect Pro Meeting

Meeting Present Layouts Pods Help

Attendee list (7)  
My Status: Active  
Christa James-E  
aaron gorman

EGR 202 in (1/4)



$F = 20 \text{ kg}(9.81) = 196.2 \text{ N}$

$\vec{F}_{0A} = -F_{0A} \hat{j}$      $\vec{F}_{0B} = -F_{0B} \hat{z}$

$\vec{F}_c = F_{0c} (\hat{i} \cos \theta) = F_{0c} \left( \frac{\vec{F}_{0c}}{r} \right)$

$= F_{0c} \left( \frac{6\hat{i} + 14\hat{j} + 12\hat{k}}{\sqrt{6^2 + 14^2 + 12^2}} \right)$

$= \frac{3}{7} F_{0c} \hat{i} + \frac{9}{7} F_{0c} \hat{j} + \frac{6}{7} F_{0c} \hat{k}$

$\sum F_x = 0 = -F_{0B} \hat{i} + \frac{3}{7} F_{0c}$      $F_{0A} = 98.1 \text{ N}$

$\sum F_y = 0 = -F_{0A} + \frac{9}{7} F_{0c}$      $F_{0A} = 65.4 \text{ N}$

$\sum F_z = 0 = \frac{6}{7} F_{0c} - 196.2 \text{ N} \rightarrow F_{0c} = 228.9 \text{ N}$

3.  $F_{0A} = kx$   
 $65.4 \text{ N} = 300 \text{ N/m} (l - 2)$   
 $l = 2.218$   
 $S = 2.218$

32

Share Stop Sharing Full Screen

Chat

Tim (10:33) yea ill do that and ill get that extra on too  
Tim (10:33) yea but I need as many points as a can get  
Tim (10:34) k thanks and thanks for the help  
Christa James-Brynes (10/5/2014 10:35) Hi aaron - can you hear me talk?  
aaron gorman (10:35) no, im trying to get it working

karon gorman typing

To: Everyone

Talk Sharing Discussion EGR 202 Class Collaboration MEC 202 Class



# Asynchronous Discussion – Bulletin Boards



- Peer Learning
- Projects
- Research

The screenshot displays a Zoom meeting interface. On the left, the 'Attendee List (11)' shows participants: Dawn Danker, Don, and Jean 2. Below it, the 'Text Chat' window contains the following messages:

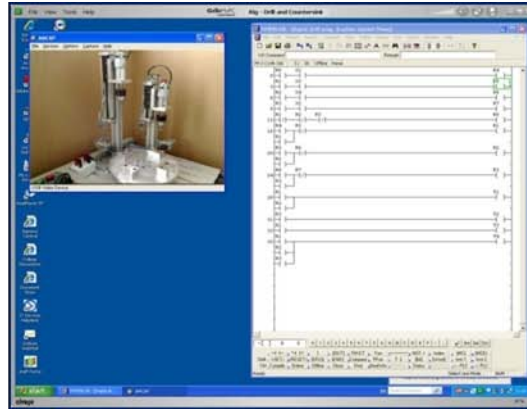
**Levi Patrick (privately):** yup  
**Scott Charlson:** Gifted one day a week, now that's funny.. :- )  
**Wes:** Maybe we should do a "creativity needs analysis" for the state? For creativity and STEM specifically, how can schools and learners in communities be empowered to make this cultural shift: create, collaborative, etc.  
**Scott Charlson:** Love the idea of connecting resources  
**Wes:** We need a reliable, open, scalable platform we can build in together - for text content, video, lesson plans, etc. We need this as a state.  
**Don:** The most popular middle school technology application for us right now is study island test prep  
**Scott Charlson:** and we still need some serious bandwidth in rural areas...  
**Wes:** We need to look at community PR. How can kids and teachers create outstanding media content which gets the attention (POSITIVELY) of local, state and national media?!!  
**Wes:** Hi Scott Wilson  
**Dawn Danker (presenters):** If Kent was right...I'm dad brady

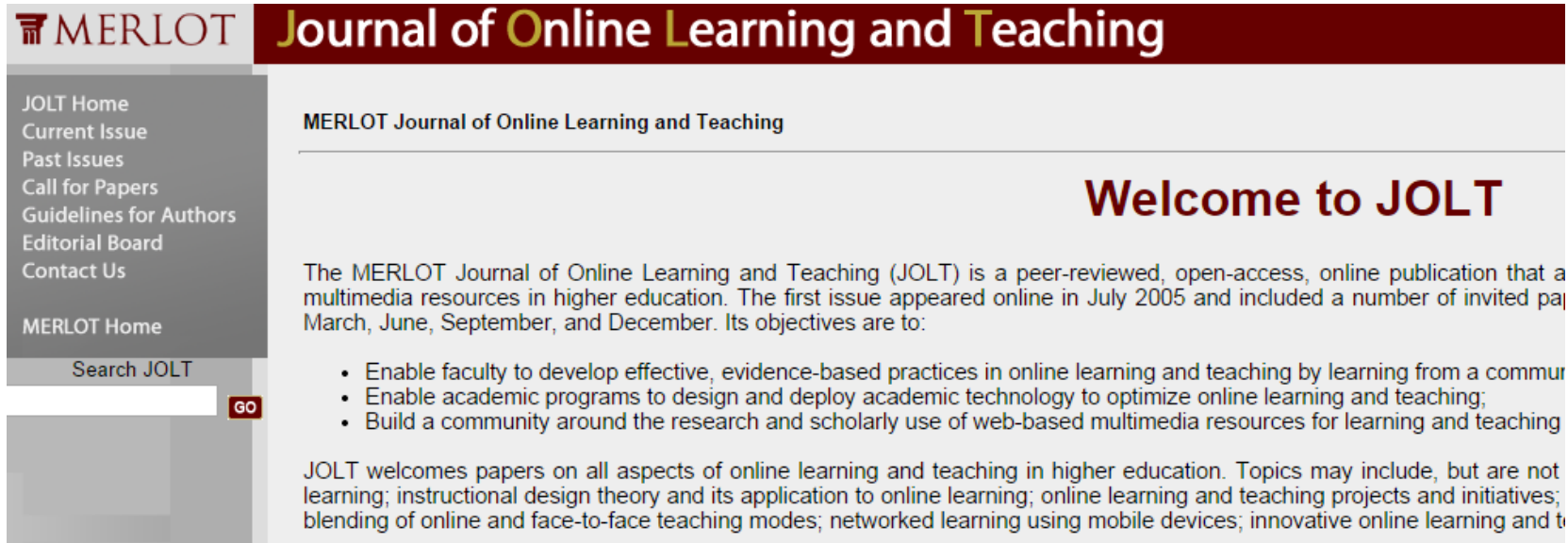
On the right, the 'Camera - Voice' window shows a grid of 11 video feeds for participants: Joshua Williams, Don, Wes, Tony Branchich, Sara Nicholas, Kent, Levi Patrick, Scott Wilson, Dawn Danker, and Scott Charlson.

- Physical
- Human interaction
- Business
- Numerical



# Remote control of equipment





**MERLOT** **Journal of Online Learning and Teaching**

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Search JOLT  **GO**

**MERLOT Journal of Online Learning and Teaching**

## Welcome to JOLT

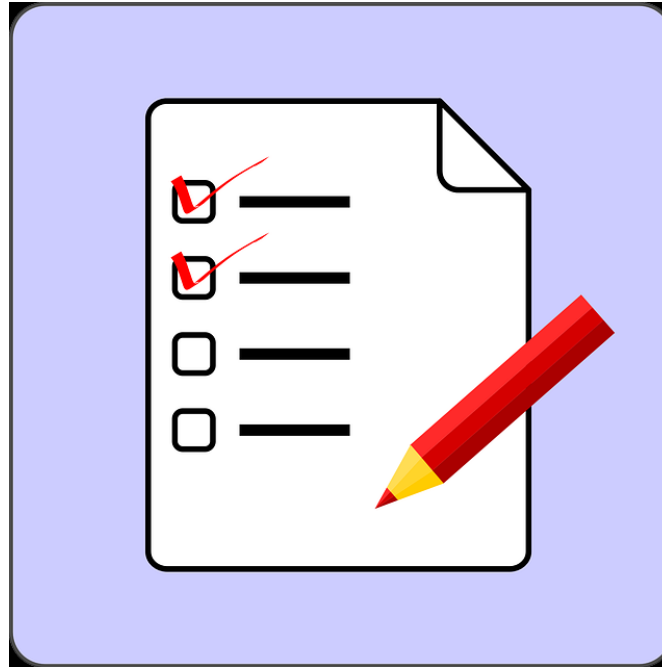
The MERLOT Journal of Online Learning and Teaching (JOLT) is a peer-reviewed, open-access, online publication that a multimedia resources in higher education. The first issue appeared online in July 2005 and included a number of invited papers in March, June, September, and December. Its objectives are to:

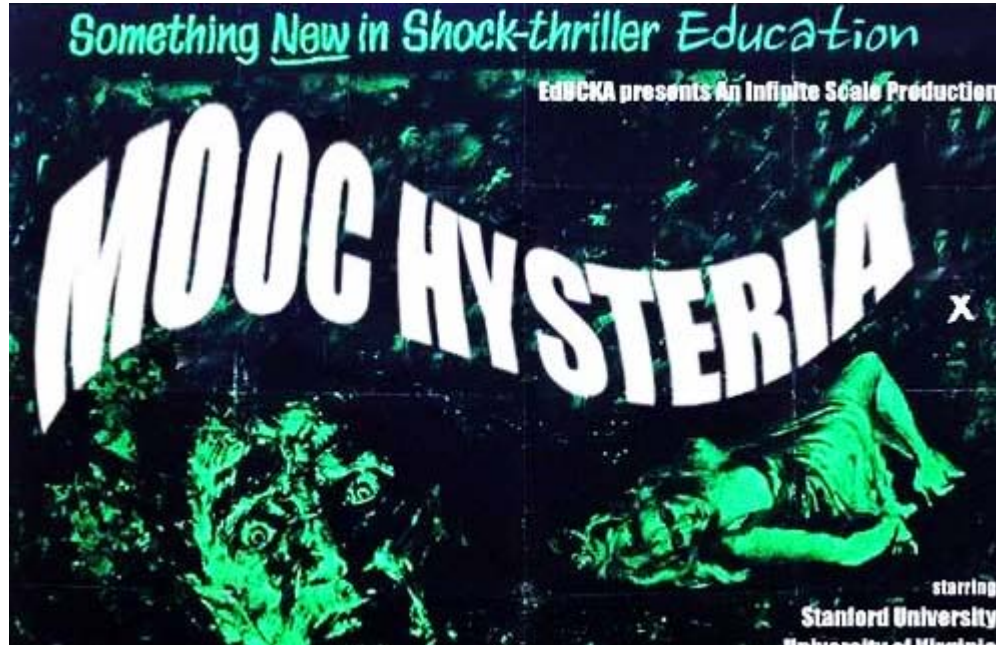
- Enable faculty to develop effective, evidence-based practices in online learning and teaching by learning from a community of practice;
- Enable academic programs to design and deploy academic technology to optimize online learning and teaching;
- Build a community around the research and scholarly use of web-based multimedia resources for learning and teaching

JOLT welcomes papers on all aspects of online learning and teaching in higher education. Topics may include, but are not limited to: instructional design theory and its application to online learning; online learning and teaching projects and initiatives; blending of online and face-to-face teaching modes; networked learning using mobile devices; innovative online learning and teaching practices.

One size does not fit all!









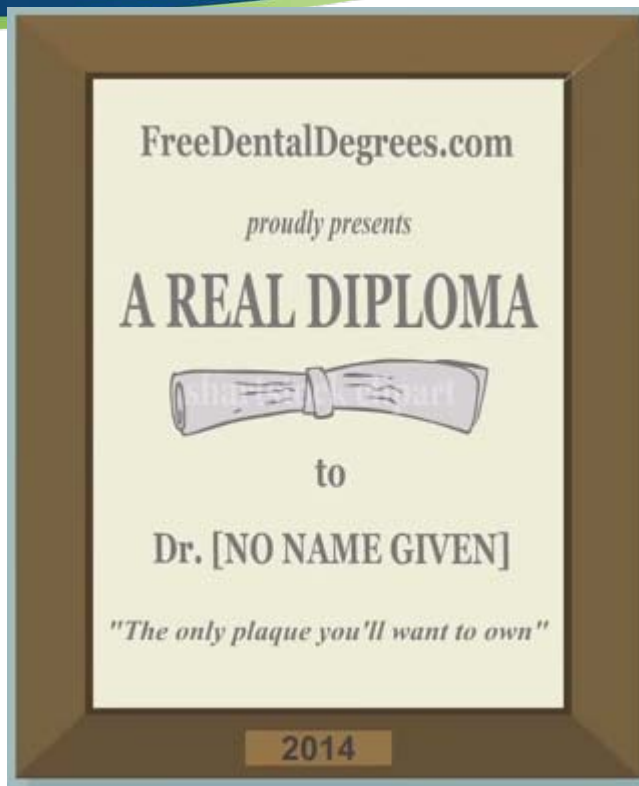
# How many did you get?

- Interactive Multimedia,
- Video,
- Live online
- Asynchronous discussion,
- Collaborative learning
- Simulation
- Remote control of equipment
- Adaptive Learning
- Reading
- Self-testing
- MOOCs



- Assessment
  - Objective tests
  - Assignment dropboxes and feedback tools
  - Robot Graders
  - Peer Assessment
  - Online exam supervision
- Data Analytics
- Virtual Learning Environments (Learning Management Systems)
- SCORM
- Learning Technology Integration (LTI)

# What can you NOT learn online?





Is “free” the future of learning?

# What made Youtube so popular?

- Professional content
- Length of videos
- Ease of content creation
- Ease of publishing
- Interesting content
- Free music
- Videos of cats

A screenshot of a YouTube search results page for the query "learning to knit". The search bar at the top shows the query and a magnifying glass icon. Below the search bar, there are filters and a dropdown menu. The search results are displayed in a list format, each with a video thumbnail, title, channel name, view count, and a brief description. The first video is "How to Knit: A Complete Introduction for Beginners Part 1" by KnittingHelp.com, with 842,372 views. The second video is "How to Knit - Absolute Beginner Knitting, Lesson 1 - Even if You're Clueless!" by ExpressionFiberArts, with 761,138 views. The third video is "Learn to Knit: Part 1 (Casting On)" by GoldenJellyBean, with 17,912 views. The fourth video is "Stitch 'N Bitch: Learn to Knit" by Workman Publishing, with 80,174 views. The fifth video is "How to Knit - Cast On Beginner (with closed captions)" by GoodKnitKisses, with 1,296,165 views.

# You can learn anything online.....well, almost!

22



soccer skills



Upload

GUIDE



## Soccer Skills - The Top 5 Soccer Skills Players Need



The SoccerEssentials · 445 videos

Subscribe

71,805

Share with Hootlet

620,675

2,877

249

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About

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Lionel Messi Teaching You His Dribbling Skills - English Subtitles

by TheBarcelonaNews

513,917 views



How To Kick A Soccer Ball - 3 Soccer Kicks You Must Know

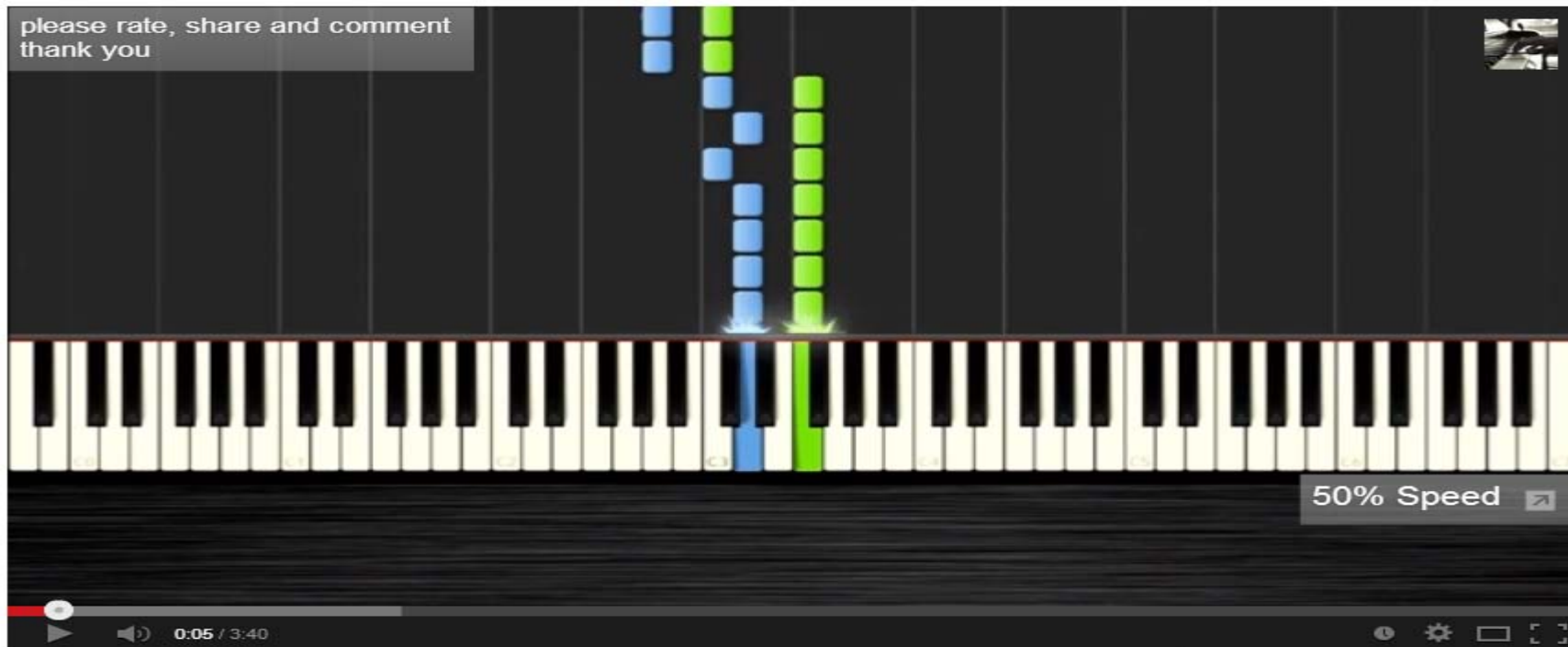
by Epic Soccer Training

1,545,919 views

# They say it's never too late to play the piano.

23

please rate, share and comment  
thank you



50% Speed

0:05 / 3:40

Miley Cyrus - Wrecking Ball - Piano Tutorial by Pluta-X - Synthesia

# Or even more useful skills.

24

## Educator.com



Home » Computer Science » Introduction to C++ » Introduction

### Introduction

1. Introduction to C++: Lecture 1 | 26:51 min | Lecture Description

### Examples

- Declare an integer variable for number of students  
`int student_count = 0;`
- Call functions to get enrollment  
`int class_id = identify_class();`  
`student_count = enrollment(class_id);`
- How many pencils will we need for this class, if each student gets a dozen?  
`int pencils = student_count * 12;`  
Add 15 percent to that to allow for breakage  
`pencils += pencils * 0.15;`

Declare an Integer  
Video Duration: 0:20 min.

Intro	0:00
Overview	0:13
What You'll Learn	0:53
Evaluate & Write Some Real C++ Code	3:22
Learn Some "Best Practices"	3:43
C++ in the WWM	4:02
Examples	7:13
Declare an Integer	7:20
Call Functions	7:41
Examples	10:20
Factorial	10:36

00:11 / 19:40

### Introduction to C++ Coding

105,812 views 1 year ago

Watch more at <http://educator.com/sylvain/> Other Computer Science sul Wordpress, and XML, with more con help from middle school through high courses.

- All lectures are broken down by indi
- No more wasted time
- Just search and jump directly to the





“The future is here, it's just not widely distributed yet.”

William Gibson (°1948)  
Canadian science fiction author,  
introduced the term “cyberspace”

# So what's the problem?

- I don't know what I need to learn!
- How can I prove I know stuff?







### Navigation

[Group Discussion Forum](#)[Announcements](#)[Introduction](#)[Week 1](#)[Week 2](#)[Week 3](#)[Week 4](#)[Week 5](#)[Week 6](#)[Week 7 Final Assignments](#)[Administration](#)

### > Lean Sigma Quality - Course Introduction




The concept of Six Sigma quality was first introduced by Motorola in the mid 1980's whereas Lean is widely considered to originate from the world class manufacturing techniques of the Japanese auto industry and in particular Toyota. It has since been embraced by leading global companies in the manufacturing and service sectors and is now the foremost **process improvement** approach for organisations that wish to attain world class performance in quality and customer satisfaction. The tools and techniques are being used in healthcare, banking and government sectors where benefits have been achieved in productivity, efficiency and elimination of 'waste'. In Lean Sigma terms 'waste' refers to anything that does not add value to the product or service in the eyes of the customer.

Forums: 3 Book: 1 URL: 1 File: 1 Glossary: 1

### > Week 1 - Introduction to Lean Six Sigma

This week, we will review the differences between Lean and Six Sigma and discuss where the tools can best be applied. A key goal of Six Sigma is reducing

# Self paced courses





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What do you want to study today?

### COURSE CATEGORIES

-  **BUSINESS AND ENTERPRISE SKILLS**  
91 Free Courses
-  **FINANCIAL & ECONOMIC LITERACY**  
36 Free Courses
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### POPULAR COURSES

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-  **DIPLOMA IN BUSINESS MANAGEMENT & ENTREPRENEURSHIP**  
2737 Certified | [XSIQ](#) | [Factsheet](#) | [Demo](#)

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I write about innovation, careers and unforgettable personalities.  
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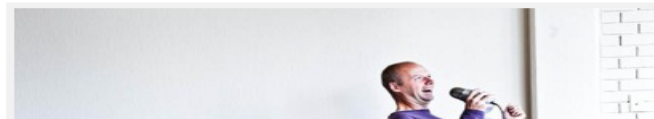
TECH | 6/05/2012 @ 2:34PM | 214,196 views

## How Would You Like A Graduate Degree For \$100?

26 comments, 12 called-out [+ Comment Now](#) [+ Follow Comments](#)

*This story appears in the June 25, 2012 issue of Forbes Magazine.*

Ask [Sebastian Thrun](#) what makes him tick, and the inventor and [Google](#) GOOG +0.13% Follow offers up three



Udacity, Georgia Tech, and AT&T Partnership

# Online Master of Science in Computer Science

We're incredibly excited to offer the first fully accredited, massive Online Master of Science in Computer Science from Georgia Tech in collaboration with AT&T. In January 2014, this degree is being offered at an affordable price, and this Spring individual courses will also be available for students to take for free or for individual certification. Our mission with each course is to help students advance their knowledge and careers. **Cost of the degree: \$6,600**

To learn more about our program, sign up to hear the latest updates!

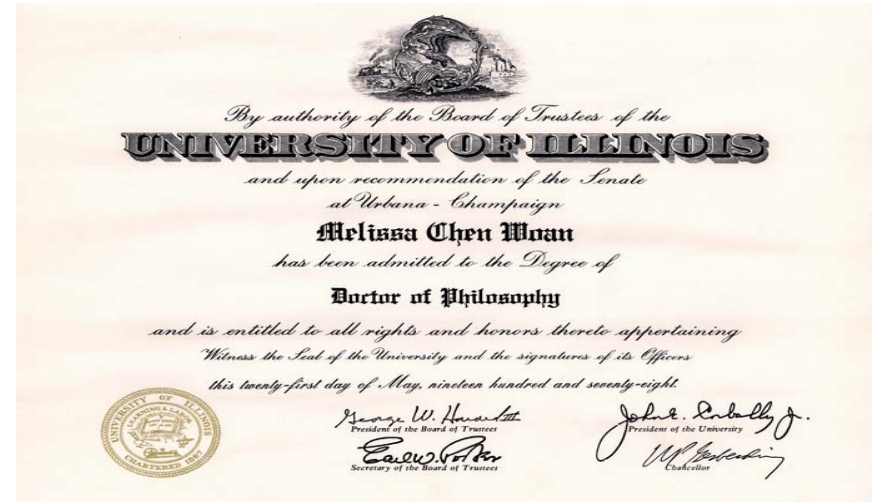
Name

Email

Get updates

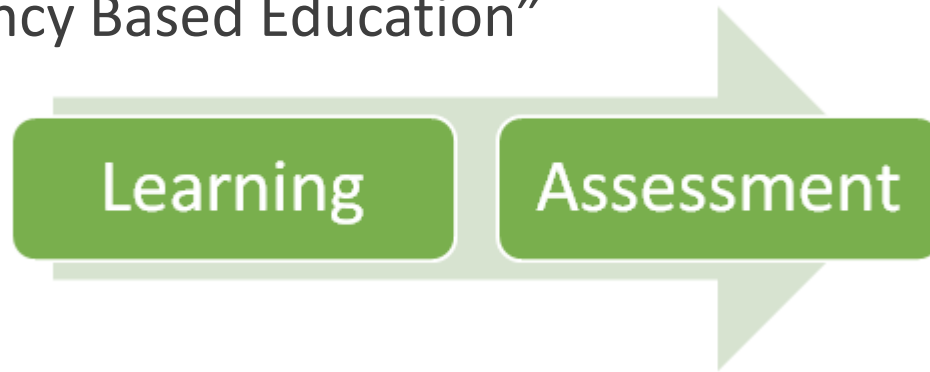


- Certification requires
  - assessment
  - identity verification
- Cannot be done for free
  - But we can bring down the cost.





- “Unbundling” of Learning from Assessment
  - Learning can be free
  - Assessment a fraction of course cost.
- Colleges starting to offer “Competency Based Education”



The screenshot shows the Mozilla OpenBadges website. At the top left is the Mozilla OpenBadges logo. To the right is a navigation menu with links for Earn, Issue, Display, Community, Press, Blog, and About. A 'mozilla' dropdown menu is also visible. The main content area features the headline 'Get recognition for skills you learn anywhere.' Below this are three columns illustrating the process: 'Earn' (a badge icon pointing to a person's profile), 'Issue' (a house icon pointing to a badge icon pointing to a person's profile), and 'Display' (a person's profile pointing to a badge icon on a laptop screen). Each column has a corresponding title and a brief description of the step.

mozilla **OpenBadges**

Earn Issue Display Community Press Blog About

## Get recognition for skills you learn anywhere.

**Earn**  
Earn badges for skills you learn online & off

**Issue**  
Give recognition for things you teach

**Display**  
Show your badges on the places that matter

# THE CHRONICLE OF HIGHER EDUCATION

January 23, 2014

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## Wired Campus

The latest on tech and education.

January 21, 2014 by [Steve Kolowich](#)







[Comment \(1\)](#)

## Coursera Will Offer Certificates for Sequences of MOOCs

Coursera will soon offer credentials for more than just individual MOOCs. The company, which provides hosting and support for massive open online courses, announced on Tuesday that it planned to give certificates to students who take sequences of MOOCs from its university partners.

“You might think of it as a real-world ‘major’ with immediate applications to career advancement and life skills,” the company said in a [blog post](#).

The new program, called Specializations, will include certificates in data science, mobile-



### Wired Campus Bloggers



**Jennifer Howard**  
 @jenhoward

Jennifer Howard is a professor of psychology and the humanities



- Providers can recoup their expenditure in other ways.
- Courses are not that expensive to develop.

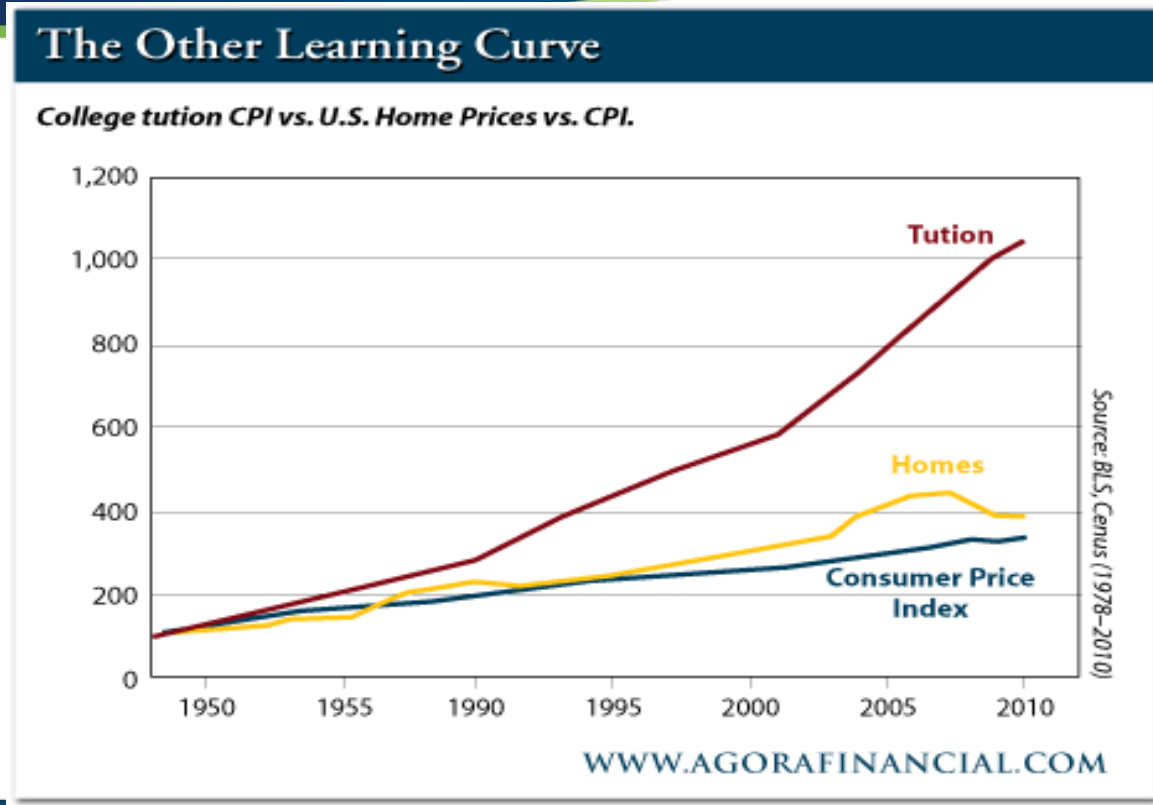
# The state of free learning

37

- Learning is *free* NOW!
- There will be lots more.
- Assessment will cost money
  - not much
- Full accreditation is coming.

The screenshot shows the homepage of the University of the People. At the top, there is a navigation bar with links for 'About Us', 'Our People', 'Admissions', 'Academics', 'Financial Aid', 'Student Experience', and 'Media'. Below this is a large banner image of a hand holding a rolled-up diploma tied with a red ribbon. To the right of the image, the text reads 'Non Profit, Tuition-Free, Accredited, Online University' and a prominent pink button says 'APPLY NOW >'. A circular accreditation seal is also visible. Below the banner, there is a section for 'UoPeople Partners' featuring logos for Microsoft, UNESCO, NYU, HP, and Ashoka. The bottom section includes a 'News' item with a quote from BBC and a 'Top 3 Reasons to Study at UoPeople' section with numbered points: 1. Tuition-Free University, 2. High Quality Education, and 3. Study Anytime Anywhere.

# Contrast with the cost of formal education



# The Perfect Storm for Disruption

39

- Drivers
  - Affordability
  - Employer dissatisfaction
- Enablers
  - MOOCs - free online learning
  - Scale -> Low-cost
  - Unbundling - Disaggregation
  - Competency Based Education
  - Alternative credentials
- 2<sup>nd</sup> tier and private most at risk – Moody's



“There’s a tsunami coming”  
John Hennessy, President, Stanford

# So what might the future look like?

- Nobody really knows!
- A possible scenario
- 2 type of institutions



Online



Residential



- Institutions become:
  - Curriculum designers
  - Curators
  - Monitors
  - Advisors/Tutors
  - Assessors and Accreditors
- Learning materials
  - Free or low cost from elsewhere
  - Developed internally



- Low-cost
- Assessment driven
- Option to purchase extras
- Some attendance
- Most students will work
  - Study at their preferred pace
- High Quality



- More expensive
- More prestigious
- “Flipped” blended learning.
- Smaller tutorial groups
- Extensive built in work placement



- Build your degree from many sources
- Individual online courses
  - Free/paid, public/private
- Work place training
- Competency Based Assessment
- Recognition of Experiential Learning
- Mutual recognition of credits



- The nature of higher education
  - Research /Teaching conflict
  - Tenure
  - Collegiality
  - Accreditation processes
  - Lack of real competition
- Customer confidence
  - Students
  - Parents
- Regulations and Market distortions



## Diamond sponsor



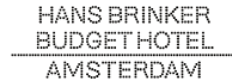
## Platinum sponsors



## Gold sponsors



## Silver sponsors



## Bronze sponsors

