

# IOWA STATE UNIVERSITY

## Online Learning Initiatives at Iowa State University

### **Ralph Napolitano**

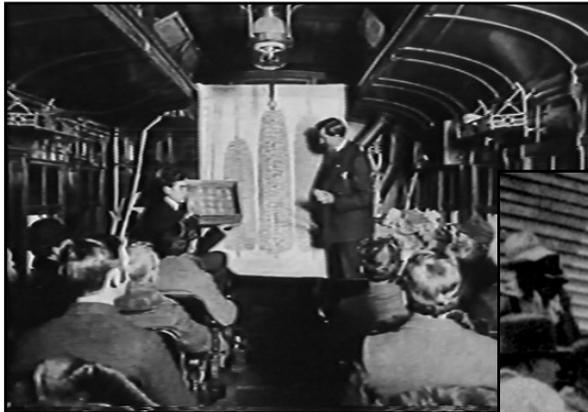
Associate Director for Online Learning

Center for Excellence in Learning and Teaching

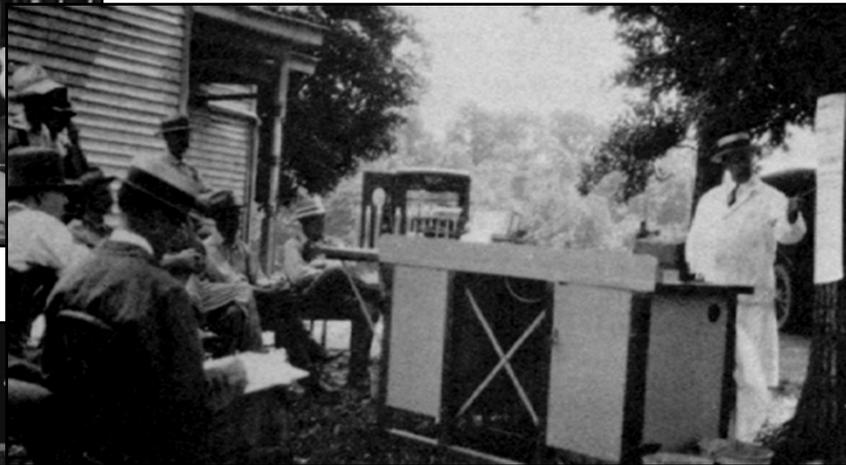
Alan and Julie Renken Professor

Department of Materials Science and Engineering

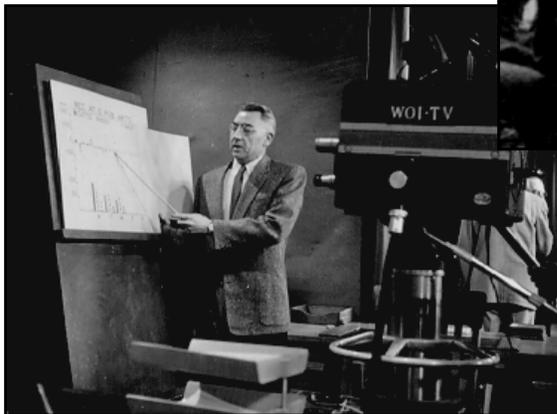
# Past: A Legacy of Distance Education



Seed Corn Gospel Train (1904-1906)  
"Modern Science of Corn"  
50 stops, ~3000 farmers



Regional short  
Courses e.g.  
"Manure Handling"  
(1905)  
~250 farmers



WOI: (1920s - )  
"University of the Air"

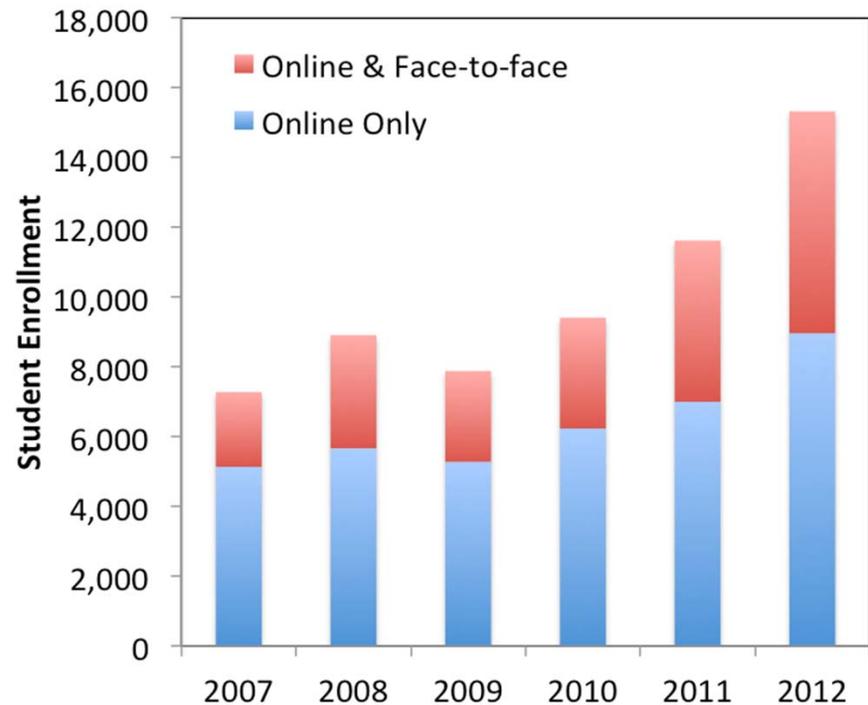


The networked  
classroom  
(1990-2000s)

# Present: Online Learning – Distance/Campus

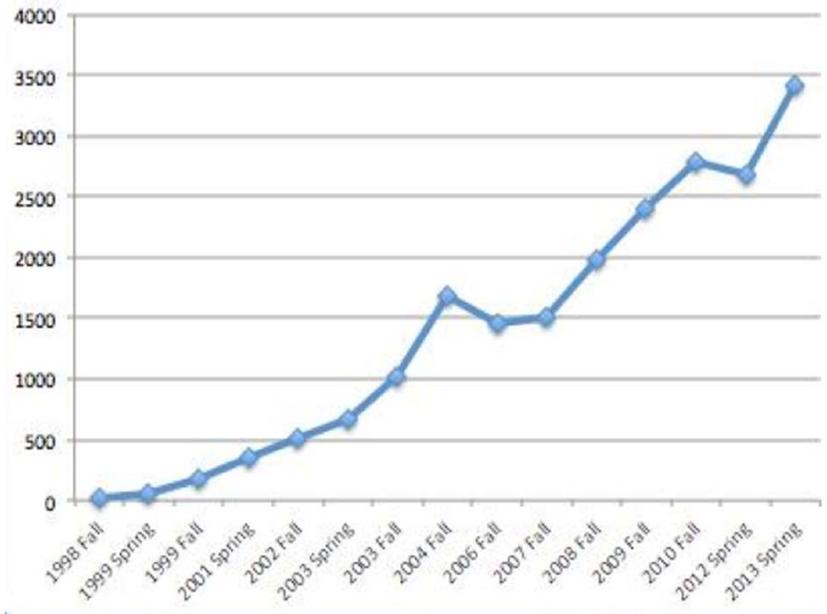
## Online Programs - 2012

- Bachelor of Science – 1
- Certificates – 21
- Master of Science – 24
- Doctor of Philosophy – 2

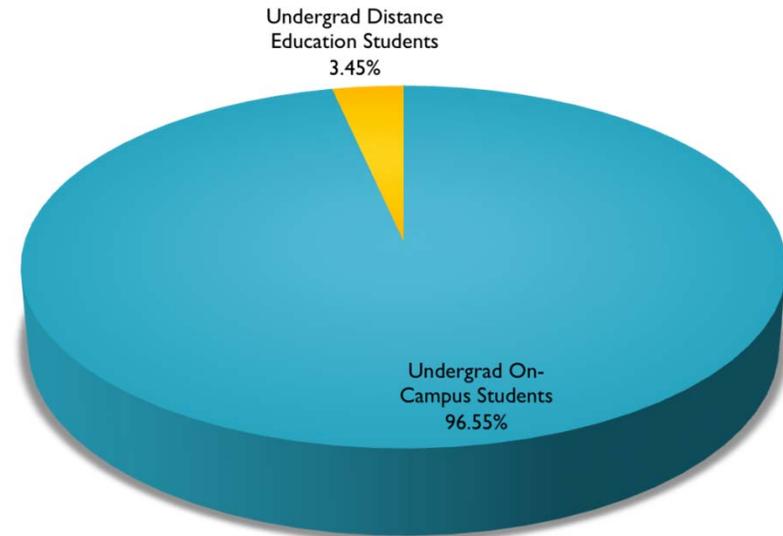


# Present: Online Learning – Distance/Campus

Online Learning Management System



Spring 2013  
LMS Enrollment



(includes 75% of total SCH)

# Online Learning in the News

Education on  NBCNEWS.com

## Monstrous class sizes unavoidable at colleges

Nobel Prize-winning prof calls for reform, says huge classes cause damage



June 17, 2013

## Giving Employers What They Don't Really Want

By Robert J. Sternberg



Often what we think other people think is not what they think. For example, Michael Barnes and I conducted a study some years ago, published in the *Journal of Personality and Social*

Brian Taylor for The Chronicle

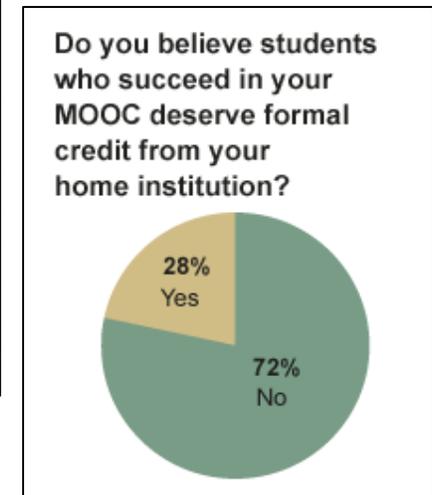
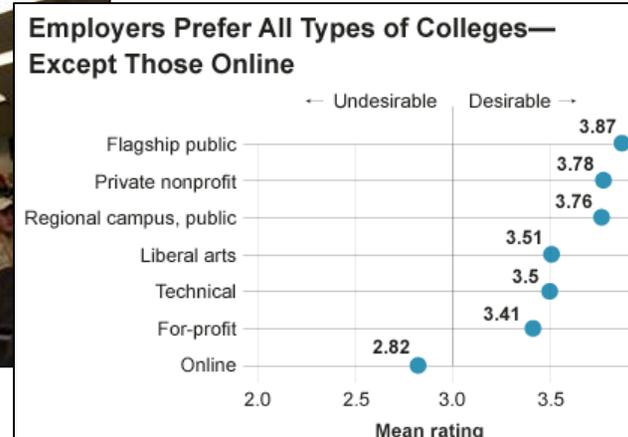
theguardian | TheObserver

News | US | World | Sports | Comment | Culture | Business | Money

News > Education > Online learning

## Do online courses spell the end for the traditional university?

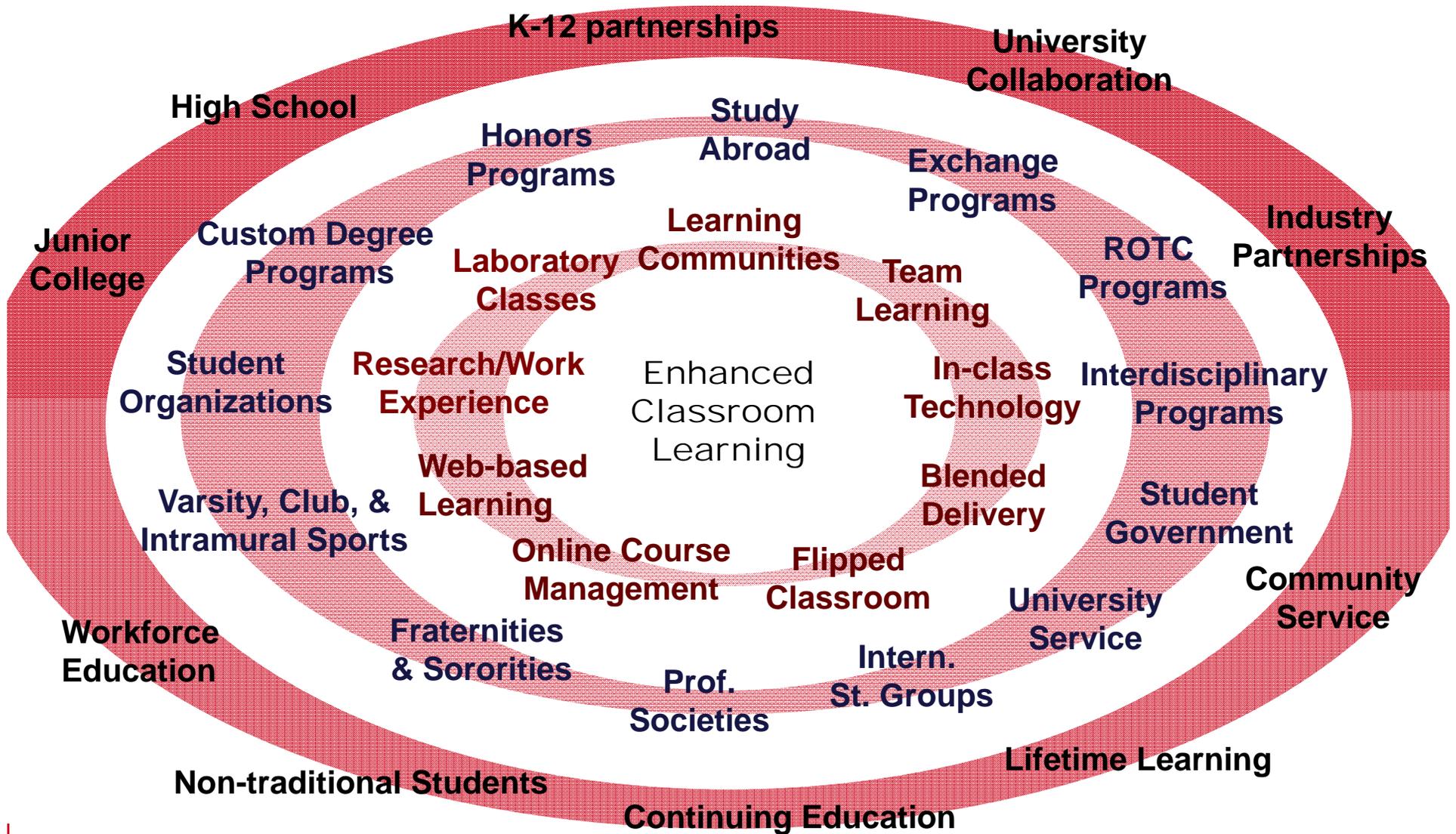
Publishing, music, shopping, journalism – all revolutionised by the internet. Next in line? Education. Now US academics are offering world-class tuition – free – to anyone who can log on, anywhere in the world, is this the end of campus life?



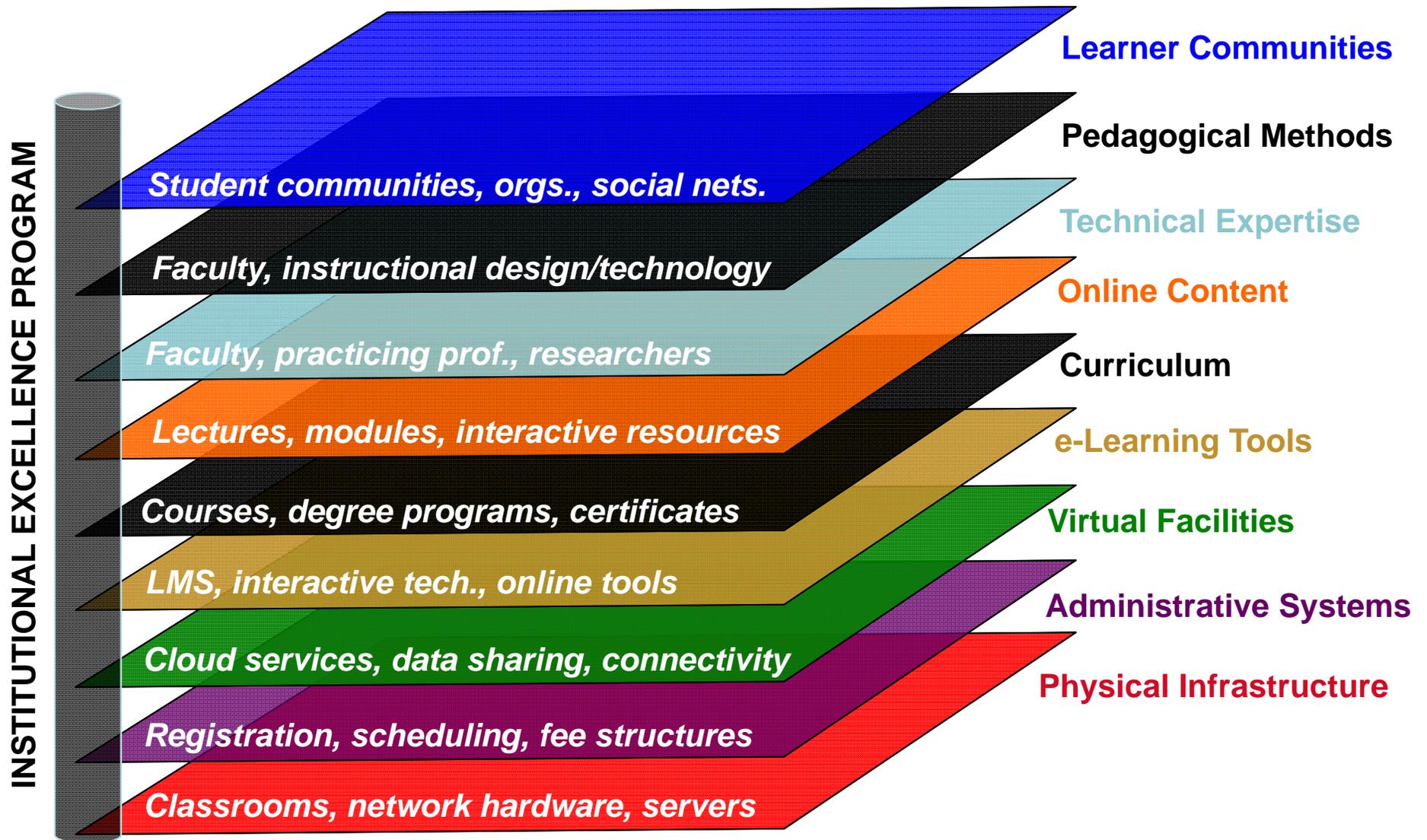
# Let's Rethink This

- How can online learning technologies be integrated to enrich the student experience – on and off campus?
- How can e-learning serve to improve quality, outcomes, and efficiency by increasing high-impact contact time and student engagement?
- What new and broader roles can universities assume through online delivery and e-learning platforms?

# How is Online Learning Best Utilized?



# E-learning Ecosystem



# Vision: Provide Clear Value to Every Student

## Current initiatives

- Accommodating high-enrollment and large classes
- Blended learning – hybrid and flipped classes
- Team-based learning
- Shared classroom resources
- Cross-university resources
- Mobile technology and social media
- Online technology solutions for lab courses
- Increased online offerings and program flexibility
- Student and faculty support in online learning
- Quality and continuous improvement
- Learning ecosystem needs assessment

# Highlights

- Online tools for thermodynamic problem solving and evaluation
- Mini-grants for online course development

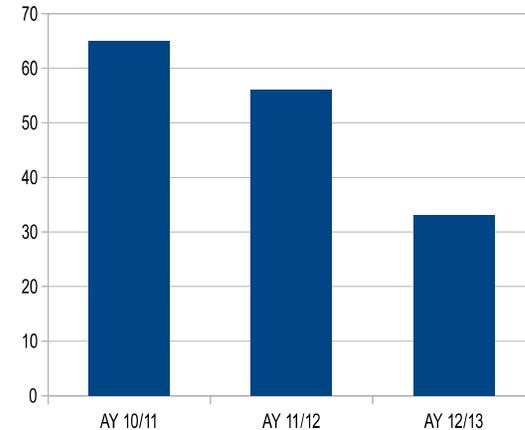
The screenshot displays the xSPACE software interface. On the left, a schematic diagram of a thermodynamic cycle is shown with states 1 through 9. Heat input  $Q_{in}$  is indicated at state 2, and heat output  $Q_{out}$  is indicated at state 7. The cycle includes a compressor (2-3), a condenser (3-4), a separator (4-5), an evaporator (5-6), and a compressor (6-7). A separator box (8-9) is also shown. Below the diagram, the problem description text reads: "An inventor proposes the following cycle to accomplish refrigeration: The box (8-1-9) simply separates liquid and gas with no other changes. Any liquid entering at 8 leaves at state 1 and any gas entering at state 8 will leave at state 9. Fluids at state 4 and 9 are mixed together and leave at state 5. Assume saturated vapor at state 3. Assume saturated liquid at states 1 and 7. Assume any compressor has a pressure ratio of 1.5. Assume a pressure of 1 psi. The refrigeration cycle uses water at 70F and 130F.  $m_{dot_5} = 1 \text{ lbm/minute}$ "

On the right, a P-h diagram is plotted on a grid. The vertical axis is pressure (psi) and the horizontal axis is enthalpy (Btu/lbm). The cycle is plotted with states 1 through 9. The process 2-3 is a vertical line (compression). The process 3-4 is a horizontal line (condensation). The process 4-5 is a vertical line (mixing). The process 5-6 is a horizontal line (evaporation). The process 6-7 is a vertical line (compression). The process 7-8 is a vertical line (separation). The process 8-9 is a horizontal line (separation). The process 9-1 is a vertical line (separation). The process 1-2 is a vertical line (evaporation).

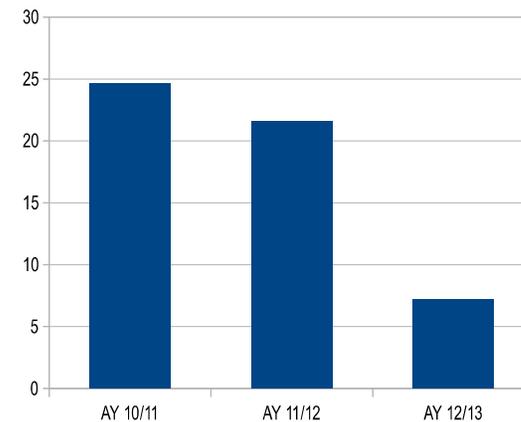
# Improving Student Success in Math

- Coordination between sections for exams, quizzes, homework
- Simplified, streamlined syllabi for deeper coverage
- Consistent content between face-to-face and online sections; all lectures on screencast

**Combined DFX rate of Math 140 and 142**



**Combined drop rate of Math 140 and 142**



## Coming this Fall...

- **Curriculum:** New online courses and programs
- **Quality:** Comprehensive institutional excellence program for online learning
- **Visibility:** A streamlined and unified web presence
- **Innovative design:** New educational products and delivery methods
- **Open access education:** A plan for MOOCs
- **Cyclone e-Nation:** Professional programs, alumni, outreach, etc.