In Joe's June 2014 newsletter

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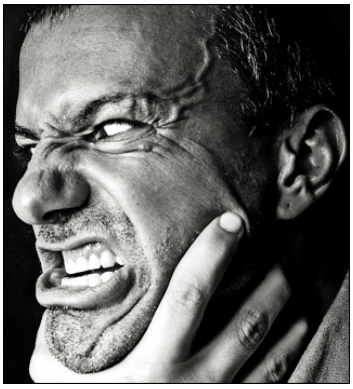
MITOPENCOURSEWARE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

New Courses

14.11 Insights from Game Theory into Social Behavior



CMS.840 At the Limit: Violence in Contemporary Representation

- 7.343 Biological Bases of Learning and Memory
- 17.267 Democracy in America
- 18.782 Introduction to Arithmetic Geometry
- 21F.065 Japanese Literature and Cinema
- ESD.864 Modeling and Assessment for Policy

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DONATE NOW

Joe, we hope you learned something new or refreshed your memory on a topic you've previously studied.

If you enjoy OCW resources and can afford to support OCW, then please consider donating to OCW today.

Your gift demonstrates your commitment to knowledge as a public good and shows our sponsors and funders how much our visitors value the site.

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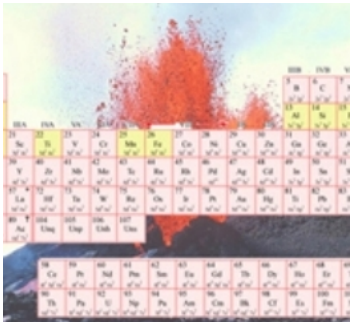
Updated Courses

9.68 Affect: Neurobiological, Psychological, and Sociocultural Counterparts of "Feelings"



12.479 Trace-Element Geochemistry

- 9.70 Social Psychology
- 14.384 Time Series Analysis
- 16.660J Introduction to Lean Six Sigma Methods
- 17.478 Great Power Military Intervention
- 21F.502 Japanese II

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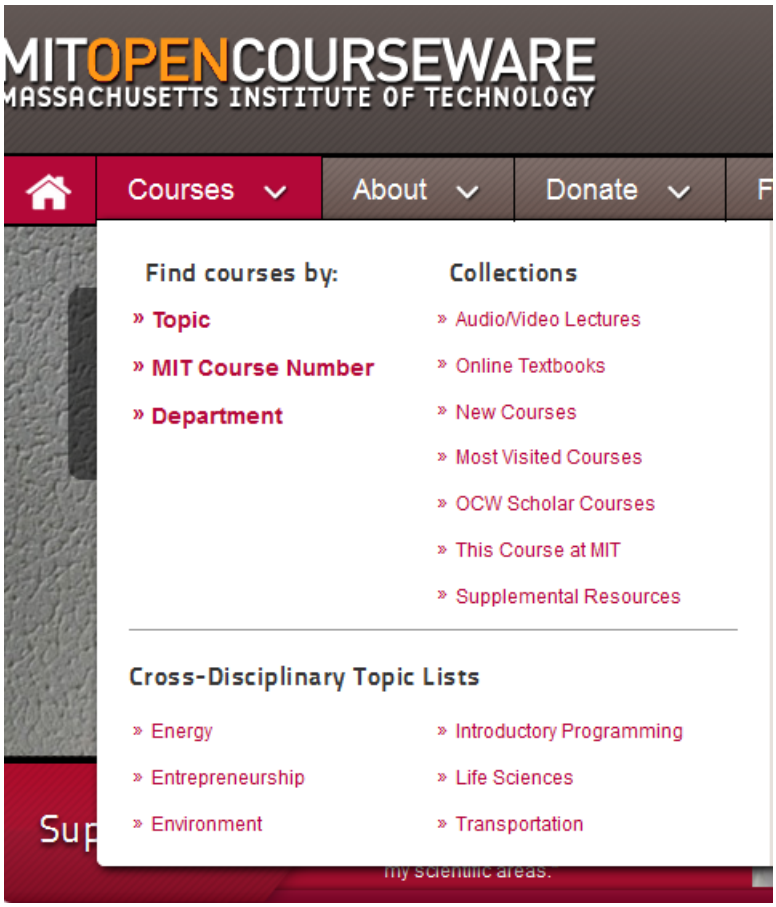
Textbooks, Anyone?

OCW is grateful for the support of:



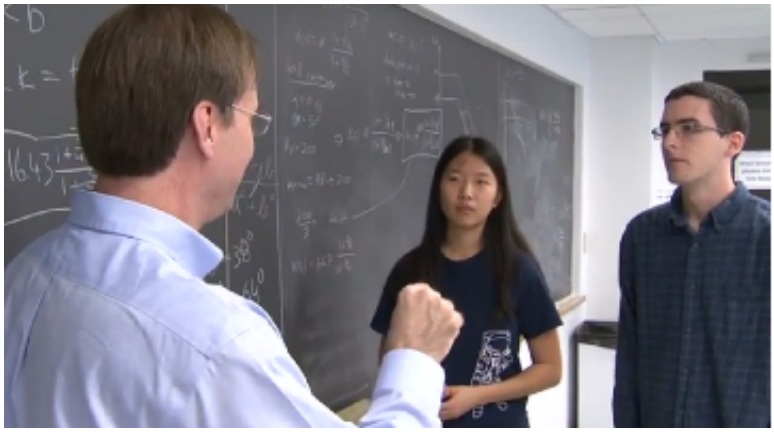
Among the many thousands of resources published on the OCW website are dozens of freely available textbooks. These resources were largely out of the public's eye until last winter when the OCW team assembled them into a list. Response to a blog post linking to this list was very enthusiastic, but the list was hard to find, as it did not have a prominent place on the OCW site.

We recently remedied this situation by adding a link in the dropdown menu under "Courses" on the OCW homepage. The link appears in the "Collections" column near the top.

The list now runs to 50 textbooks, covering a wide variety of subjects. Recent additions to the list include the following books:

- 2.086 Numerical Computation for Mechanical Engineers
- 6.02 Introduction to EECS II: Digital Communications Systems
- 12.090 The Environment of the Earth's Surface
- 12.090 Introduction to Fluid Motions, Sediment Transport, and Current-Generated Sedimentary Structures
- 18.782 Introduction to Arithmetic Geometry
- 18.S996 Category Theory for Scientists

OCW Educator



Professor Steven Hall engages students in active learning during a recitation for 16.06 Principles of Automatic Control.

Much is said these days about “active learning” and “flipping the classroom,” but how is it done? Why is it worth doing? What are the challenges, and how can they be met effectively?

In the Instructor Insights section of his This Course at MIT page, Professor Steven Hall explains how he has incorporated active learning into the recitation sessions of *16.06 Principles of Automatic Control*, a subject he teaches in the Aeronautics and Astronautics Department at MIT. In short videos, Professor Hall assesses the benefits and challenges of active learning, and his observations are illustrated with footage from his own class recitations.

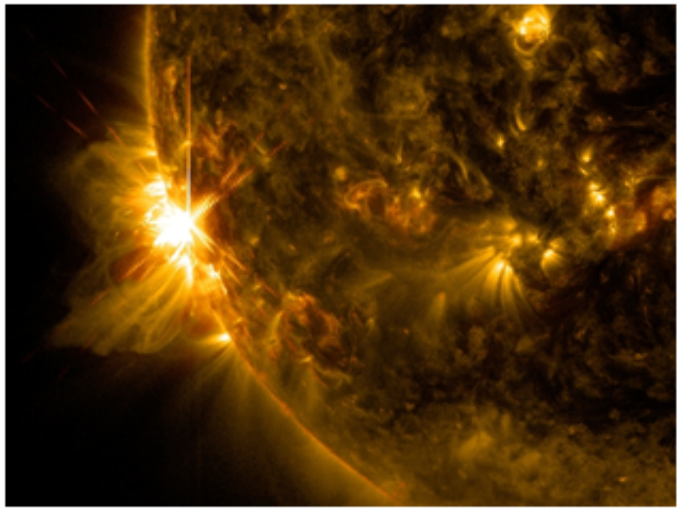
Instead of standing in front of the classroom and showing students how to do problems, Hall has his students up on their feet, working in small groups on assigned problems at blackboards. Hall ranges about the room acting as a coach, helping students when they are stuck and showing them best ways of approaching the problems.

The advantages are clear: The students are actively engaged throughout the recitation. They learn by doing. They have a clear and immediate sense of how well they have mastered the course materials and techniques. And so does their instructor.

>Find out more about Professor Hall’s insights on active learning

Professor Hall's reflections on teaching recitations are part of OCW's Educator project. You can see the reflections of other MIT instructors in the Instructor Insights sections of their This Course at MIT pages.

Highlights for High School



A solar flare, captured on June 10, 2014, appears on the left side of the image as a burst of bright light.
(Courtesy of NASA/SDO/Goddard/Wiessinger).

This past week, cameras at NASA captured images of solar flares exploding from the sun.

Pop Quiz!
A solar flare is:

A. A really hot day in the summer
B. A sudden and intense eruption of radiation from the sun
C. When the sun passes in front of the moon

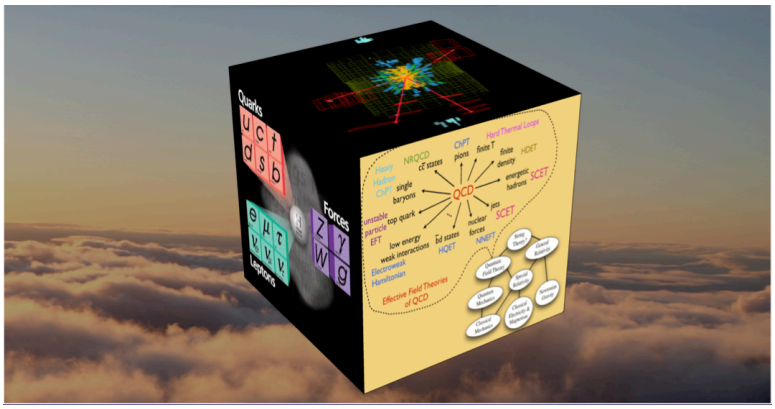
q :ɹǝʍsuɐ

About Solar Flares
Solar flares are caused by, what is known in physics, as magnetic merging. Watch an animation of magnetic merging in action from the Highlights for High School website.

To learn more about electricity and magnetism, please check out the MIT course *Physics II: Electricity and Magnetism.*

> Find out more at Highlights for High School

MITx News



(Courtesy of Daniel Kolodrubetz)

What is a MOOC? Ask yourself this question, and what probably comes to mind is an introductory undergraduate course like 6.00.1x Introduction to Computer Science and Programming Using Python or 7.00x Introduction to Biology—The Secret of Life.

But the universe of online learning is ever expanding, and the stereotype of the MOOC as basic undergraduate fare is being shattered, with new experiments in online education arising every day.

A prime example of this phenomenon is 8.EFTx Effective Field Theory, a graduate-level course in quantum physics created by Professor Iain Stewart, to be offered on the edX platform starting on September 16.

This course is decidedly not for everyone. Effective Field Theory (EFT) is a fundamental framework to describe physical systems with quantum field theory. Some of the topics the course covers include:

- The Standard Model of particle physics as an effective field theory (EFT)
- The weak bosons, W and Z, and the Higgs boson as predicted by the Standard Model
- Chiral perturbation theory (ChPT), an effective field theory (EFT)
- Static effective field theories such as Heavy-Quark Effective Theory (HQET)
- Soft-Collinear Effective Theory (SCET), a theory for collider physics

While the lingo may seem intimidating to non-initiates, Professor Stewart's goal is simple enough: to bring MIT-caliber graduate physics to physics students and instructors around the world. The edX platform offers an effective way to do this.

People who are interested can prepare themselves by examining Professor Stewart's *Effective Field Theory* (8.851), the OCW representation of Professor Stewart's course as taught on campus in Spring 2013. The OCW site has videos of all of Professor Stewart's lectures.

OCW also has the prerequisite course for 8.851, *Relativistic Quantum Field Theory II* (8.324), as taught in Fall 2010 by Hong Liu. Professor Stewart usually recommends that students also take his *Relativistic Quantum Field Theory III* (8.325), whose Spring 2007 version is available on OCW.

People who want even more background can explore the prerequisites for 8.324 on OCW: *8.322 Quantum Theory II* and *8.323 Relativistic Quantum Field Theory I*.

Professor Stewart and his colleagues in the MIT physics department have thus made a wealth of graduate-level resources on quantum physics available to the world, and the launching of the 8.EFTx MOOC in September will extend this effort in a new direction even as it illustrates how OCW and MITx can resonate sympathetically in the brave new world of online learning.

Views From Our Supporters

"I'm studying in Italy as an

Italian student in Information Technology Engineering 2^ Year/3.

I am 50 aged, and it is often difficult to understand subjects, so, very often, I use OCW resources and your video lessons that are clear, straight to the point.."

- Paulo, Independent Learner, Italy

> Read more

Tell us what you think of OCW here.