

教育イノベーションとしての オープンエデュケーションの可能性

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統計教育大学間連携・統計教育ワークショップ 2.29.2013

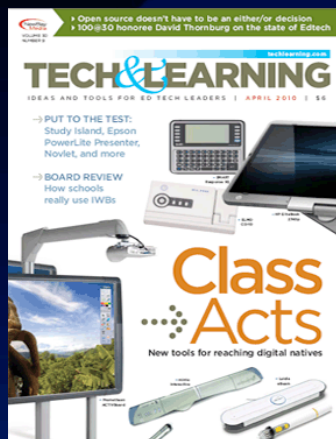
教育
文明

教育
文化

教育イノベーション

技術的・物質的所産

精神的所産



一人の教育者の情熱と狂気

サーカスのように夢中になれる大講義：「基礎物理学」



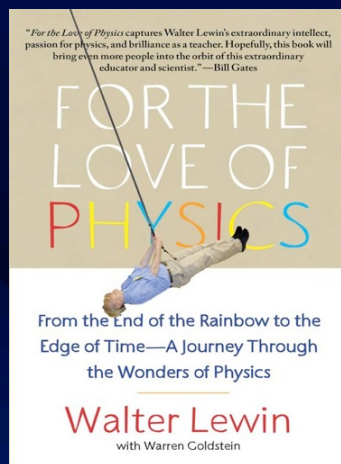
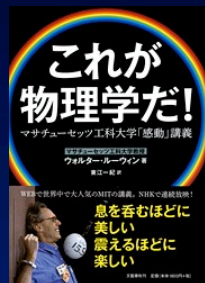
TEAL (Technology Enable Active Learning)



The Gallery of Teaching and Learning - KEEP Case Studies: Transferring Knowledge and Experience

John Belcher教授と仲間たちによる授業改革プロジェクト

「物理への愛のために」



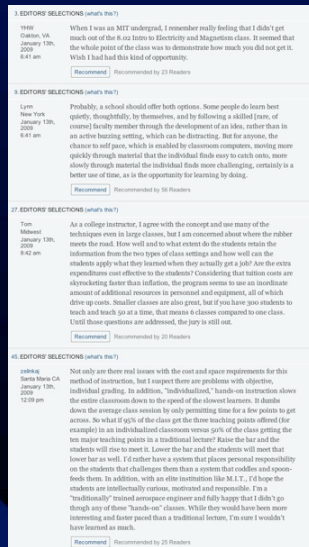
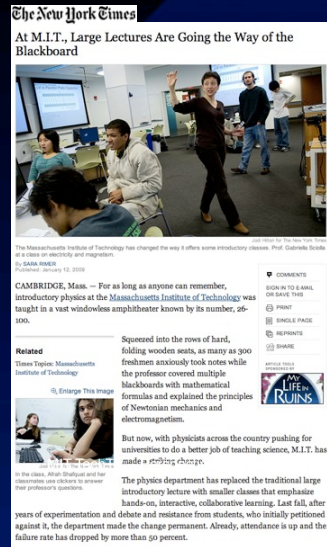
複数の学科・学部が協力して教育イノベーションを推進



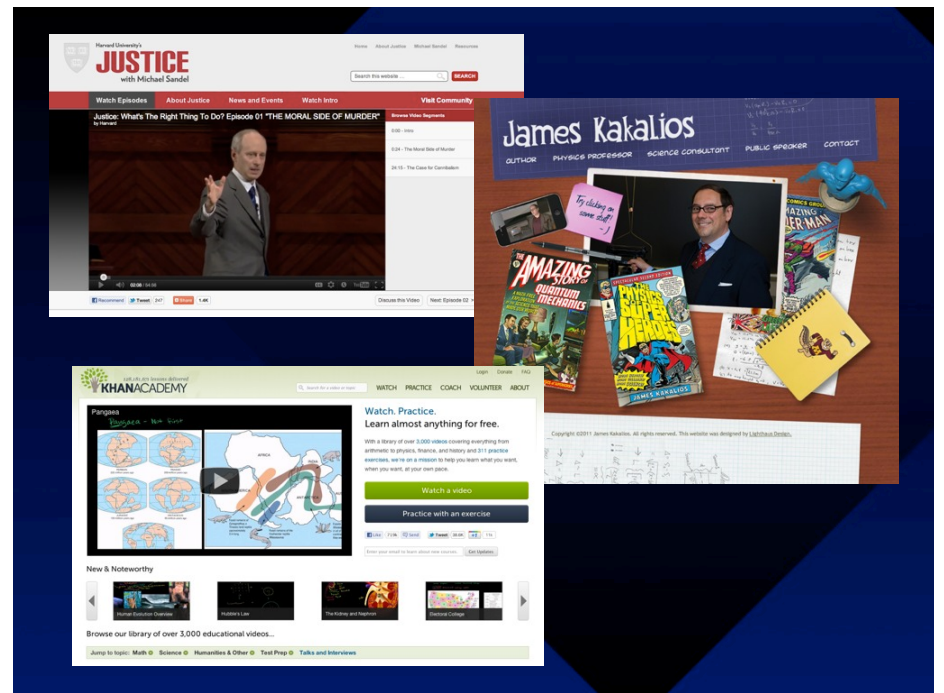
数学科で開発されたMathletsが、物理学科のTEALでも利用されている。

[Mathlets](#) [Mathlets Snapshot](#)

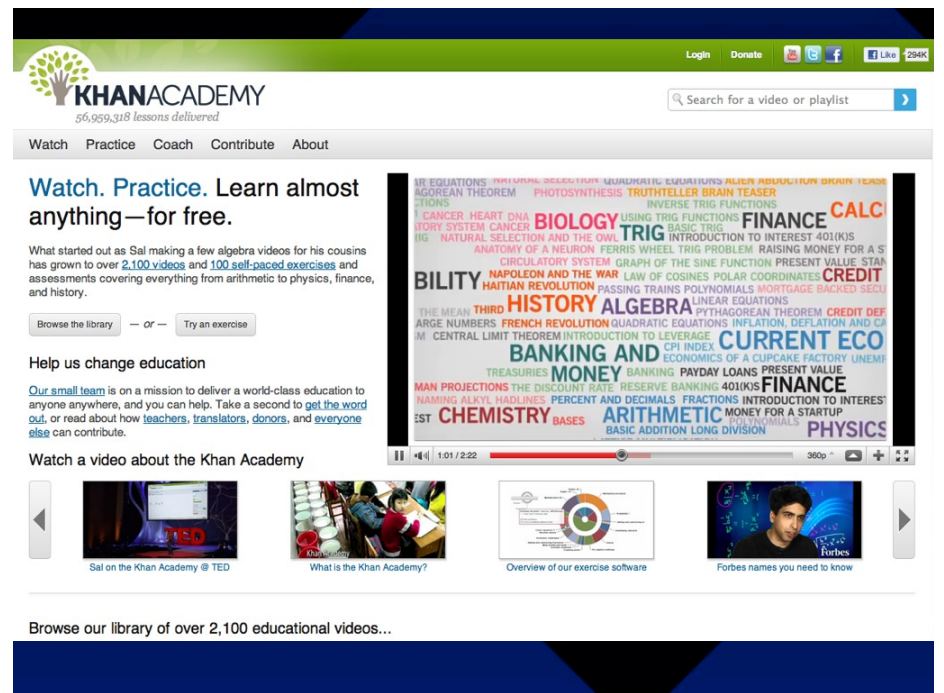
教育イノベーションは、一日にして成らず！



At M.I.T., Large Lectures Are Going the Way of the Blackboard - NYTimes.com MIT TechTV – Perspectives of TEAL



情熱増幅装置としてのオープンエデュケーション



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Probability and statistics

Community Questions

TOPICS

- Independent and dependent events
- Probability and combinatorics
- Random variables and probability distributions
- Descriptive statistics
- Regression
- Inferential statistics

Probability and statistics

Basic Probability

Topics

- Independent and dependent events**
Introduction to probability, indep...
29 ★ 4
- Probability and combinatorics**
Permutations and combinations. Usi...
18 ★ 5
- Random variables and probability distributions**
Random variables. Expected value...
13 ★ 1
- Descriptive statistics**
Measures of central tendency and dispersion. Mean, median, mode...
20 ★ 7
- Regression**
Fitting a line to points. Linear regression. R-squared.
11 ★ 1
- Inferential statistics**
Making inferences based on sample data. Confidence intervals. M...
40 ★ 4

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<http://www.khanacademy.org/math/probability>

Carl Wieman (U.S. Professors of the Year 2004)



物理学教授 Carl Wieman

- ノーベル物理学賞
- NSF Distinguished Teaching Scholar
- U.S. Professors of the Year他、教育改善活動に関する賞多数
- Teachingにける情熱
- PhETプロジェクト



Flipped Classroom: 自宅で授業・教室で復習

Los Altos Town Crier
Serving Los Altos California and Surrounding Communities Since 1947

Home Home Schools LAEF leaders learn value of Khan Academy

LAEF leaders learn value of Khan Academy
Written by Traci Newell - Staff Writer/tracin@latc.com
TUESDAY, 03 MAY 2011

Sal Khan, founder of Khan Academy, addressed the LAEF leaders last week to explain the not-for-profit organization's mission. Concepts are available to anyone, anywhere, anytime. Each concept is presented in a video format, followed by a practice exercise.

Photo Town Crier File Photo

Students at Egan Junior High School use the Khan Academy curriculum in the Los Altos School District's pilot program.

Los Altos School learned about Khan Academy.

"We saw this tool and realized it was one of the difference makers," Khan explained. "The academy is an enhancement to the curriculum."

post-gazette.com
Pittsburgh Post-Gazette

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Neighborhoods

Long prison term sought in child porn case
DeWiese transferred to extreme County prison

New twist in education: 'Flipped classroom' makes homework an in-school effort, puts lectures online
Thursday, January 05, 2012
By Mary Niederberger, Pittsburgh Post-Gazette

Mr. Labron High School math teacher Pete Boushy teaches a "flipped" class where students view a video of his lecture on their own time and get individual help on their homework from Boushy during class.

ノーベル物理学賞の賞金で作られた物理学習用オープン教材

From This Week's Chronicle

A NEW FORMULA FOR TEACHING
A Nobel Prize winner in physics takes charge of reforming undergraduate science education at the University of British Columbia. Carl E. Wieman (above) says that he misses his research, but that the Nobel Prize brings a responsibility he can't ignore. (Photograph by Lyle Stafford)

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- Heat & Thermo**
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- Index**

Gas Properties: Play with an ideal gas. Add particles to a box and change the volume, add or remove heat, change gravity, and more. Measure the temperature and pressure, and see how the properties of the gas vary in relation to each other.

Circuit Construction Kit (Click here for virtual-lab version)

Masses & Springs

Radios Waves & Electromagnetic Fields

Wave on a String

Balloons & Static Electricity

Gas Properties

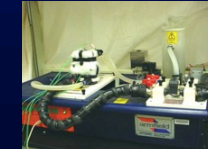
Carl Wieman教授とコロラド大学ボルダー校の仲間によるプロジェクト

格差超越装置としてのオープンエデュケーション

iLabs



Dynamic Signal Analyzer



Heat Exchanger



Microelectronics Device Characterization



Shake Table

Polymer Crystallization



Jesús del Álamo
MIT Professor Electrical Engineering Computer Science
Principal Investigator of the iCampus iLab Project

- ラボ実験の機会の増大
- 学生や研究者を対象とした、より長時間の実験機器・施設の使用
- 最新の実験機器・施設へのアクセス
- iLabsを通じた教育・研究コミュニティ作りと教育・研究コンテンツの共有

Initiative of San Luis Digital Agenda (アルゼンチン)



地元のLa Punta大学がプロジェクトを全面的に支援

世界に広がるiLabs



Microelectronics Device Characterization
(MIT-EECS, deployed 1998)



ELVIS
(MIT-EECS, deployed 2006)



Dynamic Signal Analyzer
(MIT-EECS, deployed 2004)



Neutron Spectrometer
(MIT-Nuclear Eng., deployed 2008)



Logic Lab
(OAU, Nigeria, deployed 2007)



FPGAL Lab (OAU, Nigeria, deployed 2009)



Radioactive Decay
(University of Queensland, Australia, deployed 2007)



Telecom Lab
(Makerere U, Uganda, deployed 2009)

African Virtual University



21世紀のオープンエデュケーションの可能性を探る

- 「オープンエデュケーションによって、教えと学びをどのように進展させられるか」を、カーネギー財団の出版プロジェクトを通して検証・模索
- 38人のオープンエデュケーションのリーダーと専門家による全24章を収録
- これらのプロジェクトや機関が体得した知見や将来へのビジョンを網羅: OKI, IMS, CNI, Sakai, Moodle, iCampus, VUE, Mellon Foundation, OCW, Connexions, OLI, MERLOT, OpenLearn, SOFIA, Creative Commons, Hewlett Foundation, CASTL, VKP, ISSOTL, Open University, Carnegie Foundation, LAMS, 他
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<http://mitpress.mit.edu>
Search: "opening up education"

OPENING UP EDUCATION

The Collective Advancement of Education through Open Technology, Open Content, and Open Knowledge



edited by
Toru Iiyoshi and M.S.Vijay Kumar

MIT大学出版局より刊行
(2008年)

オープンエデュケーションによるハイチの高等教育の復興



オープンエデュケーションの三構成要素

オープン
テクノロジー

オープン
コンテンツ

オープン
ナレッジ

オープンエデュケーションの三構成要素

オープンテクノロジー

Sakai™

fedora

DSPACE

IMS

Pachyderm

KEEP toolkit

LIONSHARE

OSP portfolios

Moodle

KI Open Knowledge Initiative

portal by JASIG

and more...

MIT OpenCourseWare: 2000以上の講義教材・ビデオを公開

MITOPENCOURSEWARE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Welcome to MIT OpenCourseWare, a free, open publication of MIT Course Materials. We invite you to [view all the courses available at this time.](#)

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Find individual course listings on the following MIT OCW Department pages, or view a [comprehensive course list](#).

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Anthropology

Architecture

Biological Engineering Division

Biology

Brain and Cognitive Sciences

Chemical Engineering

Chemistry

Civil and Environmental Engineering

Comparative Media Studies

Earth, Atmospheric, and Planetary Sciences

Economics

Electrical Engineering and Computer Science

Engineering Systems Division

Foreign Languages and Literatures

Welcome to MIT's OpenCourseWare: a free and open educational resource for faculty, students, and self-learners around the world. OCW supports MIT's mission to advance knowledge and education, and serve the world in the 21st century. It is key to MIT's values of excellence, innovation, and leadership.

MIT OCW:

- Is a publication of MIT course materials
- Does not require any registration
- Is not a degree certificate or certificate-granting activity
- Does not provide access to MIT faculty

Learn more about [MIT OCW](#).

Investing in Open Sharing

Demonstrating his belief in MIT and the ideal of open sharing of educational materials, MIT alumna Jen Gruber has donated \$1 million to the OpenCourseWare project.

Other OpenCourseware Projects

Top Japanese universities announce OpenCourseware initiatives.

Tufts University has launched its pilot OCW project, offering six courses, with more to come in September.

Visit other [OpenCourseware sites](#) around the world.

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Learn more about OCW's expansion.

Answer your questions.

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- Media access
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- FAQs

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"I try to write to list all the adjectives available in all the languages on earth, it will still not explain completely the user's feelings after viewing this Web site... Hats off to each and everyone involved in this novel project!" - Sathapana Ramaswamy, self-learner from India reads [more World Reaction](#).

Give Now

Support MIT OCW with a financial donation.

Reflections from MIT President Susan Hockfield

"OpenCourseWare expresses in an immediate and far-reaching way MIT's goal of advancing education around the world. Through MIT OCW, educators and students

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MIT OpenCourseWare • Physics • Electricity and Magnetism, Spring 2005

8.02T Electricity and Magnetism, Spring 2005

Open Access Version of a Course in Progress. This course is a permanent offering featuring a conducting non-magnetic rod with static dissipation. The subject is licensed by a Creative Commons license to the MIT OpenCourseWare project. Please note that this is not the original version, but a revised version. For more information, see [Lecture 10 \(Lecture of Prof. Jim Stachurski\)](#).

Highlights of this Course

The course features [lectures](#), [tutorials](#), [labs](#), and [exercises](#). The course is a permanent offering featuring a conducting non-magnetic rod with static dissipation. The subject is licensed by a Creative Commons license to the MIT OpenCourseWare project. Please note that this is not the original version, but a revised version. For more information, see [Lecture 10 \(Lecture of Prof. Jim Stachurski\)](#).

Course Description

This freshman-level course is the second semester of introductory physics. The focus is on electricity and magnetism. The subject is taught using the TAP (Teaching Assistant Program) format, which allows students to learn from the TAPs and the professor. The TAPs are trained in the TAP program and are trained in the TAP program. The TAPs are trained in the TAP program and are trained in the TAP program. The TAPs are trained in the TAP program and are trained in the TAP program.

Staff

Instructors:
Prof. John R. Taylor
Prof. Michael Field
Prof. John Stachurski
Prof. John Stachurski
Prof. John Stachurski
Prof. John Stachurski

Courses Meeting Times

Lectures:
Course Meeting Times:
Lect. 1 and 2: 8:00am / 10:00am

Lect. 3: 10:00am / 12:00pm

Lect. 4:

拡がり続けるオープンコンテンツの世界
既に何万ものオープンな教材が利用可能

オープン
コンテンツ

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MERLOT
Multimedia Educational Resource
for Learning and Online Teaching

OPEN COURSEWARE
CONSORTIUM

JOCW
JAPAN OPEN CONTENT CONSORTIUM

LOLA EXCHANGE
Learning Objects, Learning Activities

edna.edu.au

World
Lecture Hall

CLOE
CO-OPERATIVE
LEARNING
OBJECT
EXCHANGE

A Digital Library for Engineering Education

SCOUT
Sharing Content Online for University Teaching

and more...

The screenshot shows the OpenCourseWare Consortium website. At the top, the text 'OpenCourseWare コンソーシアム' is displayed in yellow. To the right is the 'JOCW JAPAN OCW CONSORTIUM' logo. The website header includes the 'OPEN COURSEWARE CONSORTIUM' logo and a tagline: 'Institutions working together to advance education and empower people worldwide through opencourseware. Learn more...'. A search bar with the text 'find course content...' and a 'FIND COURSES' button is also present. The main navigation menu contains links for HOME, ABOUT US, MEMBERS, HOW TO JOIN, NEWS, CONTACT US, BLOG, OER in Health, and HELP. The content area is organized into three columns: 'USE' (Find Course Materials), 'SHARE' (Share Your University's Courses), and 'SUPPORT' (Support the OCW Movement). Below these columns are three images: a student using a laptop in a library, a close-up of a notebook with a pen, and a large building. A large banner across the middle reads 'OPEN SHARING, GLOBAL BENEFITS'. A 'JOIN NOW' button is visible in the bottom right corner.

OPEN COURSEWARE CONSORTIUM

ABOUT US COURSES COMMUNITY MEMBERS

<http://www.ocwconsortium.org/courses/>

Search for **Statistics** returned 100 hit(s) in 1.618 second(s).

Page: 1/4 Per Page: 25

Course Search Results

Course Title	Details	Source	Language	Relevance
Statistical Physics	Course Details	African Virtual University	English	
Statistical Physics	Course Details	Korea University	English	
Statistical thermodynamics	Course Details	The University of Nottingham	English	
Probability and Statistics	Course Details	African Virtual University	English	
Statistical Reasoning II	Course Details	Johns Hopkins Bloomberg School of Public Health	English	
Statistical Reasoning I	Course Details	Johns Hopkins Bloomberg School of Public Health	English	
Statistical Physics II	Course Details	Students Circle Network	English	
Statistical Physics I	Course Details	Students Circle Network	English	
Statistical Methods for Business (2011-2012)	Course Details	Universidad de Oviedo	Spanish	
Statistics 225: Bayesian Statistical Analysis	Course Details	University of California, Irvine	English	
18.465 Topics in Statistics: Statistical Learning Theory (MIT)	Course Details	Massachusetts Institute of Technology	English	
Statistics 250 - Introduction to Statistics and Data Analysis	Course Details	University of Michigan	English	

Statistics 250 - Introduction to Statistics and Data Analysis

Statistical Methods for Sample Surveys

Statistics for Psychosocial Research: Structural Models

Statistics for Laboratory Scientists II

Statistics for Laboratory Scientists I

5.72 Statistical Mechanics (MIT)

18.466 Mathematical Statistics (MIT)

Introduction to Statistical Methods in Economics

Finding information in mathematics and statistics

Research and Statistics: A Personal Account

Teaching Fundamental Concepts in Statistical Science

ウェブ上で公開されている講義教材や授業ビデオは、より良く教えるためのアイデアやノウハウの宝庫！

Open Learning Initiative (Carnegie Mellon University)

Carnegie Mellon University

Open Learning Initiative

Transforming higher education through the science of learning

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WHAT WE DO

The Open Learning Initiative offers online courses to anyone who wants to learn or teach. Our aim is to combine open, high-quality courses, continuous feedback, and research to improve learning and transform higher education. [Learn More](#)

The Science of Learning

Invitation to Participate

Join our latest study. We are evaluating the effectiveness of our four new courses. [Learn More](#)

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CC-OLU Pilot Evaluation

August Webinar Dates

Study of OLI in the Wall Street Journal

News, Events + Media

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APL/ACC Planning Project

CC-OLU Community College Courses

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Higher education is faced with some big challenges - from resource issues to compressed teacher/student interaction times. Watch this video to get a glimpse of what we're doing to help the higher education system respond.

WHAT PEOPLE ARE SAYING

The learning curve is sharp and managing the resources was difficult at first, but having access to what students are really learning and not is excellent.

Statistics Instructor

OUR FUNDERS

The Open Learning Initiative is generously supported by the following foundations:

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より深く、より効率的に、より確実に学ばせる工夫

THE CHRONICLE of Higher Education

Wired Campus

April 22, 2010, 01:59 PM ET

Bill Gates Says Open Courseware Is Good but Needs Improvement

By Jill Laster

The fragmented world of open courseware should be transformed into "a worldwide resource that's very clear who should use what," Bill Gates said in a speech on Wednesday at the Massachusetts Institute of Technology.

The Microsoft founder praised MIT as being "at the forefront" in open courseware, adding that he has taken many of the institution's OpenCourseWare classes. But he said some problems have yet to be solved in open courseware, such as how to make courses across campuses easier to find and how to best use interactive features.

The Bill & Melinda Gates Foundation is looking at how to help support innovation in open courseware, he said. "What's been done so far has had very modest funding. This is an area we need more resources, more bright minds, and certainly one that I want to see how the foundation could make a contribution to this."

インタラクティブなシミュレーションをコース教材に内包

Unit 2: Biological Chemistry

Acids, Functional Groups, and Water

Equilibrium and pH

Carbohydrates and Polysaccharides

Module 3 / Weak Electrolytes

Define a weak electrolyte and write an expression for the equilibrium constant.

Describe the dynamics of equilibrium.

Explain the relationship between the concentration of acid and conjugate base at equilibrium.

Acid Dissociation and Equilibrium

In this, and following, sections, we will begin to develop a quantitative relationship between the strength of an acid and how the acid ionization state will depend on the pH of the solution. When placed in water, acetic acid dissociates into the conjugate base, acetate, and a proton.

$$\text{CH}_3\text{COOH} \rightleftharpoons \text{CH}_3\text{COO}^- + \text{H}^+$$

The extent to which the acid will dissociate in pure water is expressed as K_a , the equilibrium constant for dissociation of an acid:

$$K_a = \frac{[\text{CH}_3\text{COO}^-][\text{H}^+]}{[\text{CH}_3\text{COOH}]}$$

K_a is the ratio of the mathematical product of the concentration of each product of the reaction (in this case the charged species) to the concentration of the reactants (in this case the neutral species). The square brackets [] around the terms indicate concentration and is usually expressed in molar concentration (moles/Liter). In the Learn By Doing you will explore the equilibrium of an acid dissociation in pure water. In this simulation you can assume the concentration is molecules per beaker and thus the concentration will be equal to the total number of molecules in the experiment.

Learn by doing

In the bottom of the right you can watch as the equilibrium shifts and molecules dissociate the acetate the acetate with a positive charge and acetate ion containing a neutral acetate group (CH3COO-). Acetate ion is conjugate base, with a negative charge. Acetate may act as a weak base, then the acetate ion and releasing.

Watch the action for a short period and then click "Continue".

CH3COOH <=> CH3COO- + H+

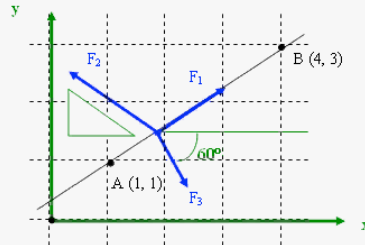
AI(人工知能)技術を応用した自学サポートツール(Cognitive Tutor)を コース教材と共に提供

Determine the sum of three concurrent forces:

Force F_1 has a magnitude of 5N ; its line of action passes through points $A(1, 1)$ and $B(4, 3)$

Force F_2 has a magnitude of 4N ; its line of action is parallel to a 3-4-5 triangle

Force F_3 has a magnitude of 7N ; its line of action is at 60° degrees to the horizontal



What is the magnitude of the sum?

$R =$ N

What is the direction of the sum?

$\theta =$ degrees

Hint



(Candace Thille, 2007)

Carnegie Mellon University

Open Learning Initiative
Transforming higher education through the science of learning.

Sign In
Help

Syllabus: Statistical Reasoning (Open + Free)

Before you begin, [Test and Configure](#) your system for use with this course.

Introduction and Learning Strategies

Assignment	Status
------------	--------

[Introduction](#)

[Learning Strategies](#)

[The Big Picture](#)

Statistical Reasoning

Assignment	Status
------------	--------

UNIT 1: Exploratory Data Analysis

[Module 1: Examining Distributions](#)

[\(Available Practice\)](#)

[Module 2: Examining Relationships](#)

[\(Available Practice\)](#)

UNIT 2: Producing Data

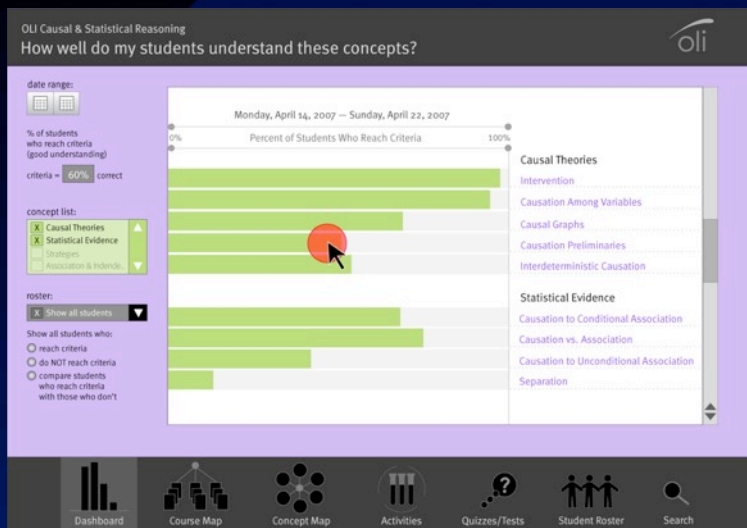
[Module 3: Sampling](#)

[\(Available Practice\)](#)

[Module 4: Designing Studies](#)

[\(Available Practice\)](#)

自習過程の学習診断結果を教員や学生自身に伝え、理解にくいしに くい概念や学習項目を明らかにする。



(Candace Thille, 2007)

大学教育におけるFlipped Classroomも可能 Open Learning Initiative (Carnegie Mellon University)

Open Learning Initiative

Welcome to Carnegie Mellon's Open Learning Initiative (OLI):
A collection of openly available and free online courses and course materials that extend instruction for an entire course or an entire semester.

Take the OLI tour

Individual Self-Learning:

- We designed the OLI courses to help you learn the course or instructor.
- You will not receive credit from Carnegie Mellon for OLI.
- This is not meant to replace or have access to OLI.
- Click on a course "Take the OLI tour" link and begin here.

Instructions around the world use OLI courses:

- Create your own course that includes any your class.
- Learn and improve your course material to your needs.
- OLI makes your students learning of new concepts and skills as individualized as possible.

Students Taking OLI Courses for Credit:

- If you are a student at Carnegie Mellon and your main class is not an OLI course, you can use OLI as a supplement to your main class.
- OLI courses are not available for credit through OLI courses.
- If you do not have a course credit code, talk to your advisor for credit.

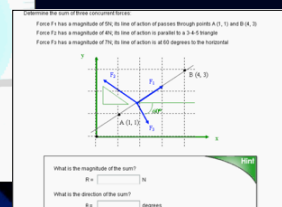
Simulation

In the simulation on the right you can watch as the CH3COOH molecule and molecules dissociate into separate ions. The process is a reversible change and actually involves comparing a neutral functional group CH3COOH (labeled "CH3COOH") with a negative charge. Because they are in an equilibrium state, they are always breaking and reforming.

To help you see the acids and molecules a light circle will be drawn around these neutral molecules.

Watch the action for a short period and then click "Continue".

- 学習科学や認知科学に基づいたコース設計
- 効率的・効果的な学習・教授の追求
- 理解度・学習進捗の可視化
- 教授法・学習法・教材の改善のための教員と学生のコミュニティ作りを支援



Open Textbook: Connexions (Rice University)

The screenshot shows the Connexions website interface. At the top, there's a navigation bar with links like Home, Content, About Us, and Help. Below this, a search bar is visible. The main content area is divided into several sections: 'Connexions is!', 'Find Content', 'Create Content', 'Author Login', and 'Spotlight'. The 'Find Content' section shows search results for 'statistics', listing various modules and their authors. The 'Create Content' section provides instructions on how to create and publish content. The 'Author Login' section allows users to log in to their accounts. The 'Spotlight' section features a featured author and their work.

This screenshot shows the Connexions website interface with search results for 'statistics'. The top navigation bar includes links for Home, Content, Lenses, About Us, Help, and MyCNX. A search bar at the top right shows the search term 'statistics'. Below the navigation bar, a section titled 'Search for Content' displays '5583 results for: statistics'. The results are listed in a table with columns for the title, author, and keywords. The first result is 'Statistics: misuse of statistics' by Ben Yehudah. The second result is 'Introduction to Vocational Statistics' by Ben Yehudah. The third result is 'Sampling and Data: Statistics' by Susan Dean and Barbara Illowsky. The fourth result is 'Statistics' by Amanda Mahito. The right sidebar contains links for 'MY ACCOUNT' and 'REPOSITORY'.

電子書籍時代：Open Textbookの普及を加速



(Richard Baraniuk, 2007)

Driving Awareness and Adoption of Open Textbooks

[Home](#)
[About Us](#)
[Open Textbook Content](#)
[Adoption Resources](#)
[Success Stories](#)
[Press Room](#)
[Events](#)
[COT Blog](#)
[Contact us](#)
[Join the Community](#)

Welcome to College Open Textbooks!

Funded by The William and Flora Hewlett Foundation, College Open Textbooks is a collection of colleges, governmental agencies, education non-profits, and other education-related organizations that are focused on the mission of driving the awareness and advocacy for open textbooks. This includes providing training for instructors adopting open resources, peer reviews of open textbooks, and mentoring online professional networks that provide support to authors who open their resources. Through our community outreach, we have found that open textbooks should be:

- easy to use, get and pass around,
- adaptable so instructors can customize content,
- cross-platform compatible,
- printable,
- and accessible so they work with adaptive technology.

That's just the short list.

Help us shape and continue to define what open textbooks turn out to be. Your voice will help create open textbook standards and guide development. We need you!

For organizations and community colleges interested in joining - Please contact us.

For individuals - please join the [College Open Textbooks Professional Network](#) and participate in the conversation and development of open textbooks that benefit all college students.

Success Stories - Open Textbooks

Dr. Lisa McDonnell:
Open Textbook Adopter
[Click here to view](#)

Erik Christensen:
Open Textbook Adopter
[Click here to view](#)

Janet Spencer:
Open Textbook Adopter
[Click here to view](#)

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Project Funded by The William and Flora Hewlett Foundation

Future Energy

Course

News & Events

November 23rd, 2010
Sponsorship Program for Advocate Trainer Announced [More](#)

November 16th, 2010
College Open Textbooks Receives WOV on Nov. 12 [More](#)

November 15th, 2010
Webinar: 11/16: 11:30am (PST)
How to Drive College Costs Down & Quality Up in TE and OER: Emerging Textbook Solutions [More](#)

November 13th, 2010
Think Globally, Act Locally: Three Different Approaches to OER [More](#)

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Courses

- Statistics 110: Probability Harvard University
- iPad and iPhone App Development Stanford
- Understanding Happiness TED
- Programming Methodology Stanford
- What is religion? The Open University
- Ingenuity in the Developing World TED
- Core Concepts in Chemistry Duke University
- Introduction to Statistics Harrisburg Area Community College
- Introduction to Algorithms MIT
- Astronomy: Frontiers and Con... Yale University

College Open Textbooks Community

Driving Awareness and Adoptions

[Main](#) [My Page](#) [Events](#) [Adopt](#) [Review](#) [Blogs](#) [Photos](#) [Notes](#) [Groups](#) [Ning How-To](#)

A site for stakeholders and participants of the Community College Open Textbook Collaborative

Photo

Latest Activity

Bridget Davis is now a member of College Open Textbooks Community

WELCOME THEM! 12 hours ago

Jacky Hood updated an event Register Today for CCCOER Only Meeting at Evergreen Community College at Evergreen Community College on Saturday

Joseph Lopez Buitos added a blog post Student Created OER Materials on Saturday

WILL GREEN and Kelly Foxall joined College Open Textbooks Community

Annelis Bulava alvarez and Aaron Tullace joined College Open Textbooks Community

Events

December 9 Thursday
Register Today for CCCOER Only Meeting at Evergreen Community College
December 9, 2010 from 11am to 2:30pm - [Evergreen Community College](#)

[+ Add an Event](#) [View All](#)

Past Events

Please visit this link to view [past events](#).

About This Site College Open Textbooks

Welcome to the networking space for the College Open Textbooks Community. Feel free to browse, comment, or seek help. Monica Sain will take over as webmaster starting in October 2010. She has been the webmaster for our Advocate Trainer Ning for months. In the meantime, contact [Jacky Hood](#) if you need assistance.

Help us promote open textbooks! Become a member of this community by clicking on SignUp in the upper right of this page. After your membership is approved, please feel free to join one or more of these groups:

Accessibility
Adopters
Authors
Librarians
Research
Reviewers or the OER Center for California

Those who are interested in becoming open textbook trainers, visit the [Advocate Trainer site](#) and apply for lists of open textbooks and peer reviews visit the [Community College Open Textbook Collaborative](#). The collaborative is a partnership of twelve organizations managing an Open Textbook grant from the William and Flora Hewlett Foundation. Visit the members of our consortium including [Carnegie Mellon](#), [Community College Consortium for Open Educational Resources](#) (more than 200 member colleges), [Connections](#), [Florida Distance Learning](#), and [nine others](#).

Forum

Ab Kader Reviews "A First Course in Linear Algebra"
Started by Bill Buxton in [Recommend an Open Textbook for Review](#) May 27, 2010

Book Reviews
World's Smallest Magnetic Byte - ...
Conversation Skills - How to keep...
What's Your Story?

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[Videos](#) [Music](#) [Movies](#) [Live](#) [Education](#) [News](#)

EDU > All Categories

World's Smallest Magnetic Byte - ...
Professor Moriarty enthuses over a recently published pap...

Conversation Skills - How to keep...
Improve your ability to have a conversation with ANYONE...

What's Your Story?
A great video poem to kick off a discussion about online...

University > 1 of 3

Justice with Michael...
by Harvard

Science and Cooking
by Harvard

Public Sociology, L...
by UC Berkeley

History
by Khan Academy

Primary & Secondary Education > 1 of 3

Conversation Skills...
by EnglishLessons4U

Master Models with ...
by James ESL

6 ways to use the v...
by Rebecca ESL

Writing in English ...
by Rebecca ESL

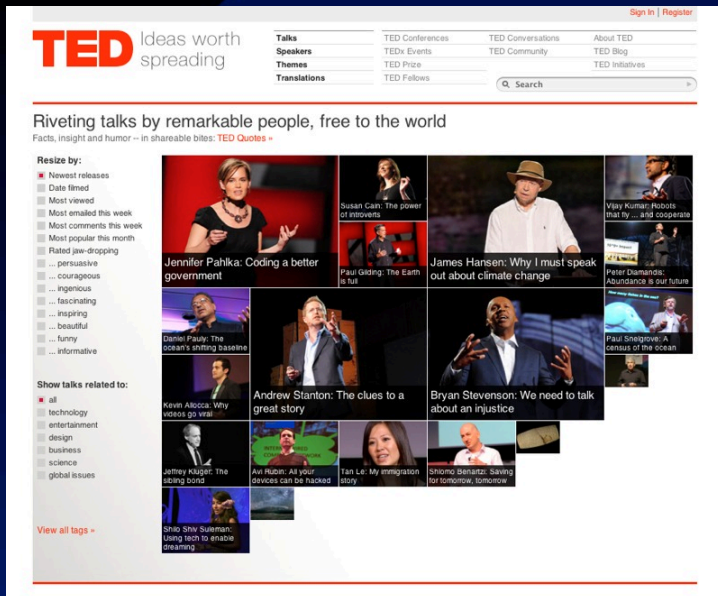
EDUCATE. ENGAGE. INSPIRE.

[LEARN MORE](#)

University & College 1 of 10

khanacademy
3,044 videos | 8,617,740 views

nptelhd
1,610 videos | 6,755,811 views



(築地)

Demand-Pull : オープンな教材の利用促進

- 「必要な人に」
- 「必要な時に」
- 「必要な中身を」
- 「必要な形で」 ← 重要!





知の料理人としての教師



Carnegie Foundation Retreat 2007

Faculty Developmentとは、
大学における「教授実践」の
文化や価値観を変えること。

個々の教員の価値観・教授活動に対する
意識と行動の変容

教授実践コミュニティの形成

教育機関としての大学の意欲的な取り組み

イノベティブな実践は、
より優れた実践へ向けての初めの一步。

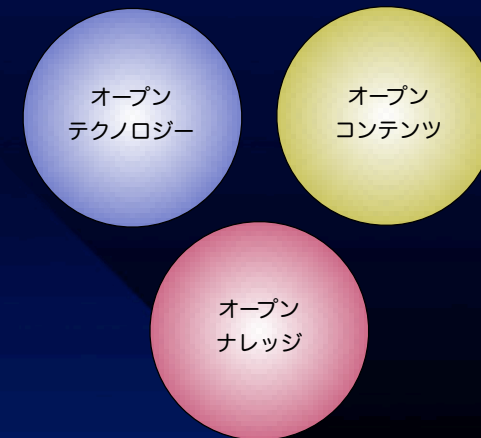
教育実践コミュニティの特性と価値観

実践	Good	Better	Best
コミュニティ の特性	Communal 共有的	Collaborative 協調的	Competitive 競争的
価値	Product 現状	Process 改善の過程	Product 理想的モデル

Scholarship of Teaching and Learning

- 教授実践を公開する。
- Peer Reviewを通じた建設的意見交換を行う。
- 互いの実践から学び合い、個人・コミュニティとして教育実践の改善に関する知識構築を行う。

オープンエデュケーションの三構成要素



「互いに学び教え合うこと」、「学ぶために教え、教えるために学ぶこと」の大切さ。

「学びたい」「学んでもらいたい」と切望し、希求しているか？そのような人たちとは、どこで出会えるのか？

Teaching Duetを通じた教育実践知の共有

The screenshot shows the MIT BLOSSOMS website. The header includes the MIT logo and 'MASSACHUSETTS INSTITUTE OF TECHNOLOGY'. Below it is the 'MIT BLOSSOMS' logo with the tagline 'Math and Science Video Lessons for High School Classes'. A navigation bar contains links: HOME, VIDEOS, ABOUT US, COMMUNITY, RESOURCES, PARTNERS, NEWS, and a search bar. The main content area features a large video player with a man in a plaid shirt, titled 'The Towers of Hanoi: Experiential Recursive Thinking'. To the right, a 'HIGHLIGHTS' section lists 'Video Lessons from Saudi Arabia', 'New Video Lessons Coming', and 'Teacher Professional Development BLOSSOM-ing in the DC Public Schools'. The footer mentions 'An initiative of MIT's Learning International Networks Consortium' and includes logos for various countries and the year '© 2012 Massachusetts Institute of Technology'.

学部・学科レベルでの教員同士の教育知とノウハウの共有

MIT Mathematics CI Space collaborative space for instructors of communication-intensive subjects

HOME TEACHING TIPS COURSE ARCHIVE DISCUSSIONS SITE HELP

CI Space > Teaching Tips > Presentations > Teaching Presentation Skills

TEACHING PRESENTATION SKILLS

HOW TO TEACH PRESENTATIONS SKILLS

Before any student presentations

After an initial round of student presentations

Useful tricks

- Ask class to generate list of features of a good presentation. Refer to this list when giving feedback on later student presentations.
- You may be able to obtain video equipment to film some student presentations. Seeing a video of yourself in front of an audience can be extremely informative (though often painful and awkward...). To ease the pain, it could be helpful to watch or discuss the video with the student, emphasizing the positive aspects of the presentation.
- If you have students comment on each others' presentations, each presenter is likely to receive the same feedback from multiple people and so is more likely to hear the feedback. To ensure that peer feedback is constructive, monitor the first few rounds and give guidance to individual peer reviewers as needed.

DISCUSSIONS RELATED TO TEACHING PRESENTATIONS:

This page displays all discussions tagged "Presentations" or "Assignments"

Student presentations in teams
March 4th, 2010 by carnahan | Tags: Presentations, team | | 2 Comments »

How to handle students with varying backgrounds/ability
September 22nd, 2009 by sassaf | Tags: Course structure, Presentations, team | | 2 Comments »

RELATED FILES

Chalk Talk Comments (doc)
Download checked

教育的知識や経験をどのように扱い、
どのように表象すればいいのか？

プラットフォームのオープンソース化

Educational Collaboration Space a site for collaborative teaching

WELCOME GOOD PRACTICES DISCUSSIONS COURSE PAGES SITE HELP

Home

Welcome

[Replace the following text with your own front-page text.]

Welcome to the ECS demo site! This platform supports pedagogical collaboration. The platform has three main components, which can be accessed from the maroon bar, above.

- Good Practices** pages are for current pedagogical wisdom; these pages are fairly static but are expected to improve gradually over time.
- Discussions** are less formal and more ephemeral than the pages. When discussion generates good ideas, those ideas should be added to the relevant Good Practices pages.
- Course Pages** are for experimentation. Here can be archived the specific materials and strategies used each term along with commentary on their effectiveness. Successful materials should be linked to the Good Practices pages.

These three work closely together. For example, an idea from a discussion may be tested in a course, discussed further, revised and retested, and finally added to the Good Practices pages (where it may continue to evolve). This platform is very flexible: your site is not restricted to the structure described above.

» **Get Started!** <- Click maroon heads to see more text

PAGE TREE

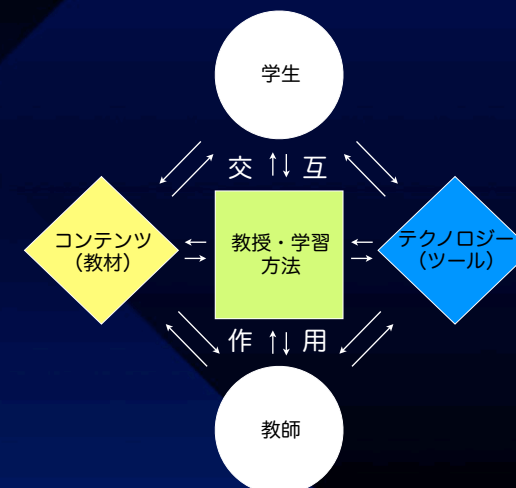
Show | Hide | Expand all | Collapse all

- Educational Collaboration Space
 - Discussions
 - Welcome
 - Good Practices
 - Course Pages
 - Site Help

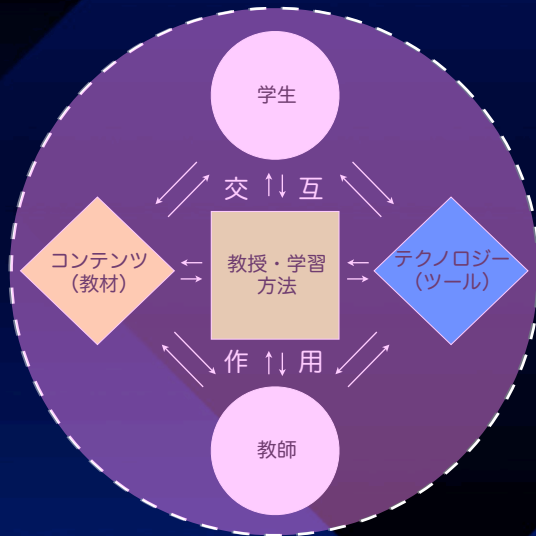
LATEST UPDATES

Welcome
Pedagogical Topic 1
Edit and Create Pages
19.101 FA10 Loesch
19.104 FA10 Who

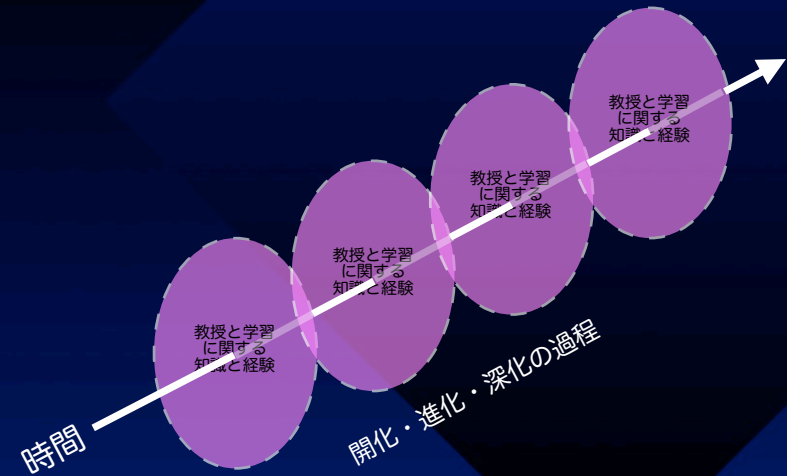
ここでいう「知識(ナレッジ)」とは？



ここでいう「知識(ナレッジ)」とは？



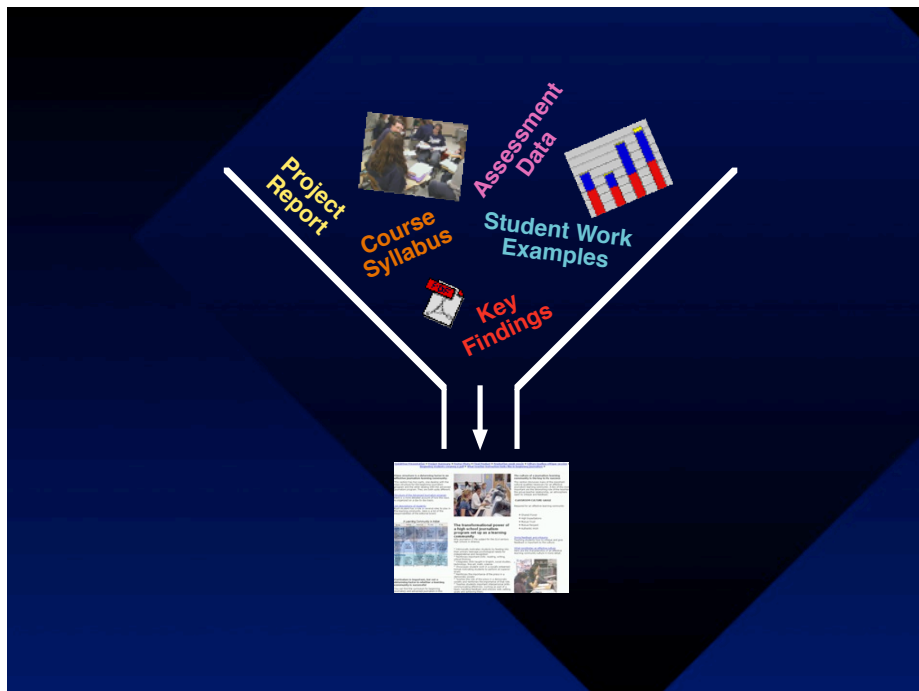
このような知識と経験を継時的に記録し
蓄積していくことは容易ではない



ここでいう「知識(ナレッジ)」とは？

教授と学習に関する
経験的知識

このような教育的な知識や経験は、時間や空間を超えて伝わる形で表象・共有・蓄積されなければ、無数のシャボン玉のように、すぐに消えて失われてしまう。



KEEP Toolkit: 教育知識表象・共有テクノロジー

KEEP toolkit
knowledge : exchange : exhibition : presentation

My Dashboard Choose a Template Home About Resources Help

You are logged in Log Out

You are here: My Dashboard

Snapshot Title (click title to view)

Snapshot Title (click title to view)	Share?	Edit
AFM 131 - Teamwork Portfolio (sent from tracy@LT3.uwaterloo.ca)	Yes	
AFM 481 - Teamwork Portfolio (sent from tracy@LT3.uwaterloo.ca)	Yes	
Author Template (sent from mcmartin@merlot.org)	Yes	
biology	Yes	
CID TEMPLATE Department Snapshot	No	
CID TEMPLATE Exemplary Element Snapshot	Yes	
CID TEMPLATE Innovation Snapshot	Yes	
CP1	Yes	

Introduction to an Innovation in Our Department

Change the title to describe an innovation in your department program and the name of your department. Then delete these two paragraphs or edit them to summarize or introduce this innovation.

This snapshot describes a new or substantially modified element of the department program (a formal requirement, an optional added component like a workshop or seminar series, or any other part of the department experience) that has not yet been implemented as a result of the deliberations you have had for the CID. We expect departments will create several of these snapshots, describing several innovations that are underway. We will provide additional templates in the future to allow you to show progress and change over time. You can link these snapshots to the CID Department Snapshot.

What is the issue we are trying to address?

Replace this paragraph with a 50-75 word description of the issue under investigation and its need of attention. If you need more space, you can attach a longer description by uploading a document. Provide a short summary of the issue here.

What is the intended effect of the innovation?

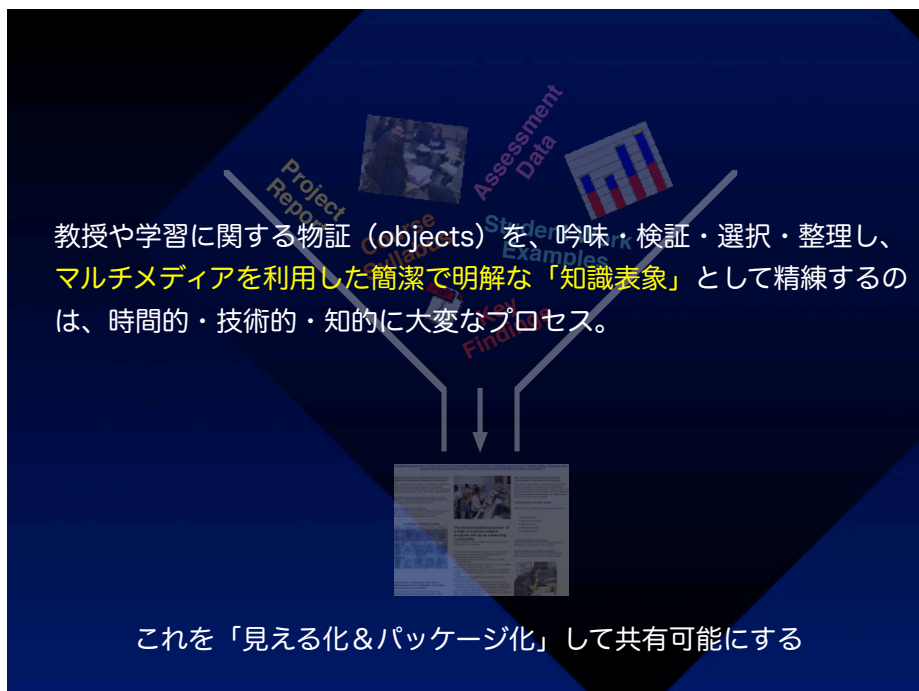
Replace this paragraph with a 50-75 word description of the intended effect or impact of the change you are making in the department program. What do you expect to happen? What will change? (Examples: students exhibit better balance of depth and breadth, institutional community in the department is more vibrant time to degree is shorter.)

What data or evidence will demonstrate the effect of our innovation?

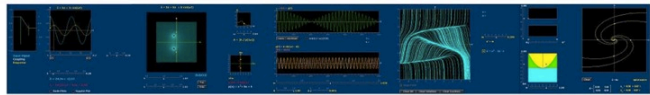
Replace this paragraph with a 50-75 word description of your plans to assess your innovation. What kinds of data or evidence will demonstrate whether and to what extent your innovation has the intended effect? What short and long term indicators are you collecting?

You can link to actual data or samples of evidence (e.g., survey results, focus group summaries).

By カーネギー財団
知識メディア研究所



KEEP Toolkitを使って、世界中の38,000人以上の教育者や学生が、既に140,000以上もの教育的知識の表象(ナレッジ・オブジェクト)を生み出した。



d'Arbeloff Interactive Mathematics Project (d'AIMP): Mathlets

Haynes R. Miller
Department of Mathematics, MIT

Computer Manipulatives in an Ordinary Differential Equations
A paper in Journal of Science Education and Technology (2007, 19)

For what discipline, course, intended learning objectives and intended learners are these learning materials designed?

The basic undergraduate differential equations course at MIT, 18.03, is taken by some 85% of all undergraduates in their freshman or sophomore year. This course faces several challenges common to such courses across the country. A grant from the d'Arbeloff Fund for Excellence underwrote a project to address these challenges. A principle outcome has been the creation of a suite of Java applets for use as lecture demonstrations and, most importantly, as the basis for homework assignments. These applets can be used directly or in modified form in downstream courses, enhancing transfer.

18.03 Differential Equations (Spring 2006, OpenCourseWare)
See the problem sets (in Assignments) and the Mathlets used (in Tools).



How did you, or do you, use these learning materials when teaching?

These applets are used as lecture demonstrations and, more importantly, as the basis for homework assignments. Each applet represents information in several forms, linked by placement or color. This linkage helps convey the connection between physical system, the parameters specifying the differential equation, and the graphical representation of solutions. System parameters or initial values are varied by means of sliders, and the effect on solutions is represented dynamically. Students enrich their understanding by making measurements and then verifying them by calculation.

Why do you believe these methods and learning materials are more effective in accomplishing your learning or teaching goals than other methods and materials? Please provide student work examples and/or other evidence that

What refinements have you made (and/or are you planning to make) to the learning materials?

Work on creating these manipulatives began in Fall 2000. They were initially written in True Basic by Ju. Itoh. In Spring 2002, they were used in homework and for classroom demonstrations in a large differential equations class. They were presented as executables and the students had to use them in on-campus computer clusters. In Fall 2002, Deborah Upton joined the team and began an intensive formative assessment of the manipulatives as they existed at the time. This resulted in numerous improvements that were incorporated in time for use in homework assignments in Spring 2003. An extensive survey and interview study was conducted with students to learn about the way in which they used the manipulatives. In that class, these data led to a better understanding of how students responded to the pedagogical medium, and to substantial improvements in the applets themselves. The manipulatives have been a staple in this course since then. In Spring 2002, a programmer began porting the code to Java, with a second programmer completing the project by Fall 2005.

Since then, many technical improvements have been introduced, taking better advantage of the power of Java. Moreover, many new applets have been written, often reaching beyond the limits of the curriculum of 18.03. (Examples: Series RLC Circuits was built in Spring 2007 for use in 8.02, Electromagnetism, and Riquist Plot was built with advice from Karen Wilson in Fall 2008 for use in her Astro-astro controls course.)

What advice would you give other faculty in using these materials/methods in their own courses?

1. Don't overuse these in lecture. Think carefully about what you want to illustrate, and practice your art.
2. You have to explain every component you want students to take note of, and talk through what you are doing, slowly and carefully.
3. Integration into homework is more effective than use in lecture. Use in lecture can acquaint students with a tool in

Mathletsプロジェクトに関するオープンナレッジ

MOST: 教える者同士が互いの実践から学び合う



教材・教授法・学習活動
2010年度 東京大学教養学部 新編リポートフォーリオオヤラー
2010年度 東京大学教養学部 新編リポートフォーリオオヤラー
2010年度 東京大学教養学部 新編リポートフォーリオオヤラー

利用者の学習動向
2010年度 東京大学教養学部 新編リポートフォーリオオヤラー
2010年度 東京大学教養学部 新編リポートフォーリオオヤラー
2010年度 東京大学教養学部 新編リポートフォーリオオヤラー

全ての大学・大学教員が利用可能
<https://most-keep.org> (京都大学が運営)



MIT OpenCourseWare

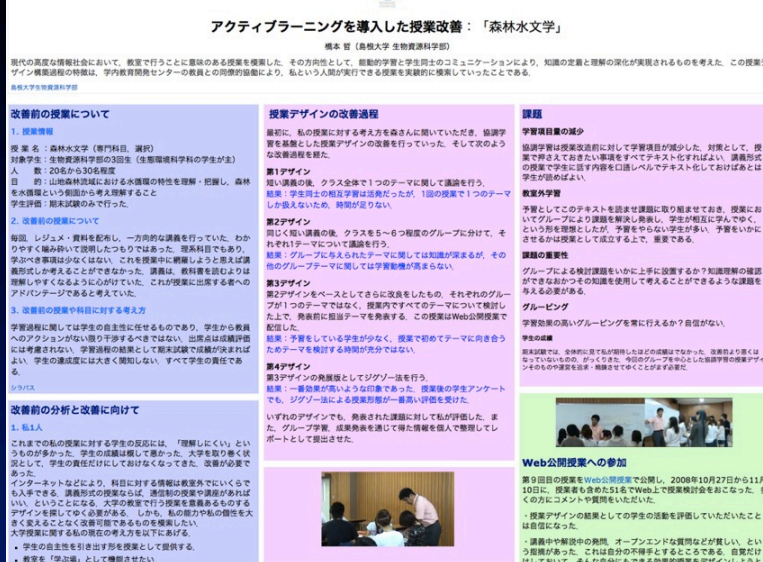


MERLOT



公開された教材の開発者と利用者の双方が、互いの教育的な知識や経験を共有することで、より効果的な利用が促進される。

アクティブラーニングを導入した授業改善:「森林水文学」



授業改善プロジェクトに関するオープンナレッジ

MOST KEEP Toolkit

ユーザーID: パスワード: ログイン

HOME MOSTについて MOST活用プログラム スナップショットギャラリー ユーザー掲示板

スナップショットギャラリー

現在の登録者数480名 | コミュニティ83件 | スナップショット1401件

スナップショットギャラリー

- 概要
- 組織的FDポートフォリオ (関西FD)
- コースポートフォリオ
- 授業/コースの改善
- 組織的FD活動
- Web公開授業
- SOTLの事例

パスワード再発行

利用規約

プライバシーポリシー

ライセンス

MOSTヘルプ

MOST 講習会実施中

お問い合わせ info@online-king.jp

組織的FD活動

組織的FD活動に関する特徴的なスナップショットを紹介します。

スナップショットの作成例

OSCEリアクション演習と自生的FD実践

平山朋子先生 (京都大学 医療保健学部)

山口大学看護教育における情報セキュリティ教育とFD活動の事例

小柏香穂理先生 (山口大学 大学情報機構) ほか

TV会議システムとWEBを活用した相互協働FD

藤原正統先生 (仁愛女子短期大学、福井県学習コミュニティ推進協議会FDチーム) ほか

SAの自己省察を自的とした電子授業録の活用状況に関する一考察

長瀬真輝先生 (関西大学 教育開発支援センター) ほか

愛媛県立医療技術大学における学生教育の現状と課題

澤田幸幸先生 (愛媛県立医療技術大学 保健科学部 看護学科)

自立的探究学習プログラムの実践と評価

奥本美子先生 (総合研究大学院大学 学融合推進センター) ほか

オープンナレッジを巡る課題

- 万人に役に立つ知識 vs. 特定の人に役に立つ知識
- いかに知的な好奇心を刺激し、積極的に「より良い教えと学び」を目指した実践を促すか?
- 効率的・効果的な教育に関する知識共有の促進とその検証を、どのように行うか?
- 人と知識、人と人（さらに人と教材やツール）をどのように最適に結びつけるか?

オープンエデュケーションにおける知識共有のトリプルプレー



Teaching & Learning Commons

Developed by the Knowledge Media Laboratory of The Carnegie Foundation for the Advancement of Teaching

Commons Manifesto

The Teaching and Learning Commons is an intellectual community space provided to enrich and encourage exchange of knowledge about teaching and learning.

We acknowledge the growth in representations of educational knowledge from instructors at all levels, increasing numbers of digital learning objects, and large and small efforts at educational transformation. We thus offer this space as a place in which teachers, learners, and institutions can engage in knowledge building and sharing. To participate in this collective effort, you are invited to:

- create representations of effective teaching practice
- share these representations with the community
- read, understand, and comment on others' work
- build on the work of other community members
- and, based on what is learned, re-create new representations to contribute to the commons.

Group Authoring for Teachers and Learners

Feb. 26, 2007

There are different kinds of group-authoring tools available to educators. Wikis appear to be the most ubiquitous and offer several, well known benefits for students and more...

First Grade Snapshot by Charles Duarte

Charles Duarte, a first grade teacher in Queen Creek, AZ, has participated in developing a practitioner research group consisting of teachers within Desert Mountain elementary school. The area of study he has chosen to focus on is the potential of moving toward a paperless classroom. Despite some obstacles in achieving an entirely paperless environment, Charles' goal was to intensify his focus on student use of technology in the classroom and how that impacts student engagement and overall performance. He took it upon himself to put a primary educator's spin on the use of the snapshot to benefit both students and parents. more...

Commons Home

- Community Favorites
- Teaching & Learning Blog
- Manifesto
- Forum

KML Playlists

Knowledge Building Across Disciplines

Views on Student Portfolios

Teaching Reading and Writing

Evidence of Student Learning

Powered by H2O PLAYLIST

Social Bookmarking

As you browse this site, you can bookmark and share your favorite pages using Del.icio.us

Latest Blog Post

Feb. 26, 2007

Top Searches

art (2)

education (1)

student portfolios (1)

english (1)

portfolio (1)

Higher Ed (1)

K-12 (1)

indiana university (1)

KEEP (1)

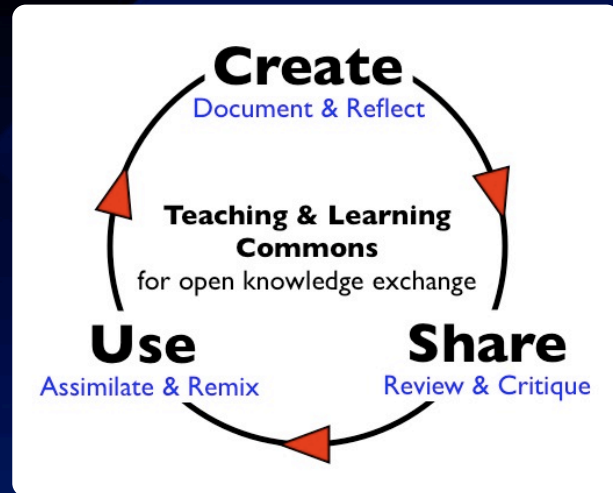
math (2)

more >

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教育的知識の「生成－共有－利用」を循環させる



A Circle of Knowledge Building and Sharing
(Iiyoshi & Richardson, 2008)

テクノロジーによって支援された
「教えと学びの実践コミュニティ」の構築に向けて



大学、教員、学生が、それぞれの立場でオープンエデュケーションに参加

オープン
ナレッジ

公開・共有されたカリキュラム・教材・教育テクノロジーが、「どのようにデザイン・開発・利用されたか」という経験や知識は、共有され蓄積されなければならない。

これによって初めて、「教えと学びのイノベーション」を目指す実践コミュニティの形成を通じた教育の進展が可能になる。

1. 教育テクノロジー・教材の質的改善
2. 教育テクノロジー・教材の利用方法の改善
3. 個々及び全体の教育的知識の増大

オープンエデュケーション: Education 2.0への序章

オープン
テクノロジー

オープン
コンテンツ

オープン
ナレッジ

- 教育システムの根本的な再構築を促進
- 協調的な教えと学びを可能にする「オープン」な教授・学習環境の実現（オープンテクノロジーとオープンコンテンツを無料で自由に使うことが可能になり、互いの知識や経験を共有しながら、ダイナミックに最良の学習を追求できる）
- 大切なのは、学ぶ者と教える者の双方が「より良く学びたい・教えたい」という情熱を持続させること！

「Eの時代」から「Oの時代」を経て「Cの時代」へ

● Eの10年：1990年代

- e-コマース、e-ビジネス、e-パブリッシング、e-ラーニング
- Gopher (1991)、WWW (1991)、Mosaic (1993)、XML (1996)、WebCT & Blackboard (1997)、他

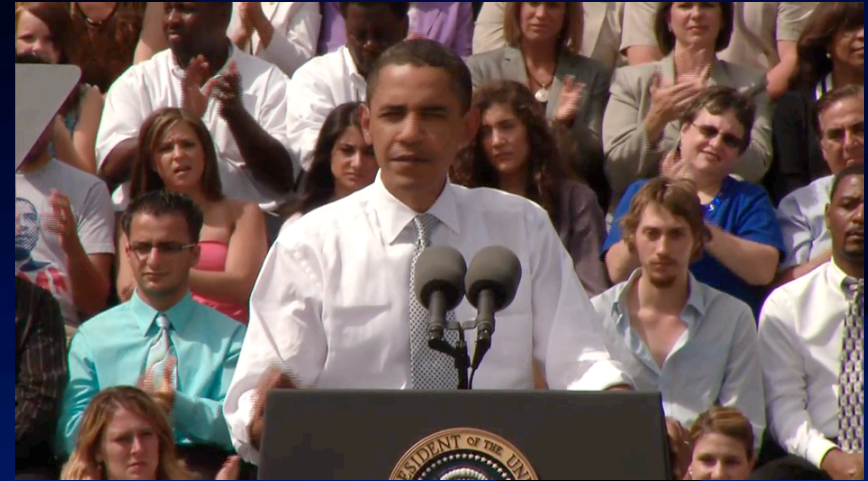
● Oの10年：2000年代

- オープンソース、オープンシステム、オープンスタンダード、オープンアクセス、オープンエデュケーション、オープンリサーチ、オープンイノベーション
- WEB 2.0、Wikipedia、YouTube、Blogs、OpenCourseWare、iTunes U、他
- 「解放テクノロジー」(J. M. Unsworth)

● Cの10年：2010年代

- Collaboration、Collectivity、Communities、Commons、Cloud
- Social Networking Service (SNS)、Twitter、Social Learning、Meta University

オープンエデュケーション： 実験段階から実証段階へ



(Macomb Community College, 2009)

オープンエデュケーション「次の10年」： 実験段階から実証段階へ

- オープンエデュケーションの主要な牽引力となってきた民間助成財団や教育振興財団による助成の縮減
- 各国政府・国際機関などによる実証的なオープンエデュケーション利用の推進（現実的教育問題・課題への解決策として）
- 新たなオンライン高等教育システムの台頭、国際的な高等教育制度の見直しと刷新、既存の大学の進化と淘汰などを加速
- よりグローバルなプラットフォーム、ツール、スタンダードの普及との相乗効果
- より効果的・効率的なオープンエデュケーションのモデルや開発プロセスの実践的模索

アメリカの（世界の？）高等教育の未来

- 高等教育を受ける人々の数は増加し続けるが、フルタイムで4年制の大学に通う学生数は減少する。
- より安価・便利・柔軟な高等教育システムへのシフト。
- 3年以下で学位が取れる学士プログラムの台頭。
- 1年のリメディアル教育プログラムを充実させ、よりcollege-readyな学生を増加させる。
- 2020年以降、（現在）人種的マイノリティーの学生が、大学で過半数を占めるようになる。
- オンライン型やブレンディッド型の教授-学習活動（授業のディスカッション、オフィスアワー、講義、宿題・課題）が普及する。

「グローバル化・フラット化する世界」において求められる
21世紀の教育におけるパラダイム転換

Supply Push → Demand Pull

流通・販売

小売店 → オンラインストア

メディア

マスメディア → パーソナルメディア

広告

マスメディア → ネット検索付帯

教育

大量生産的・画一的な知識や
技能の習得 → コミュニティーベース
興味・能力・必要に応じたオン
デマンドな知識・技能の習得

一人ひとりの無限の可能性のための
次世代教育環境 = オープンエデュケーション

21世紀の教育におけるパラダイム転換

Supply Push → Demand Pull

教育

大量生産的・画一的な知識や
技能の習得 → コミュニティーベース
興味・能力・必要に応じたオン
デマンドな知識・技能の習得

高等教育 1.0 → 高等教育 2.0

現代社会において、個々人が、知識的・技能的・職業的基盤を確保するために、十歳代後半から二十歳代前半までの四年間を「壁に囲まれた」大学で過ごせば「高等教育は修了」というモデルは、機能しなくなりつつある。「高等教育のロングテール化」が不可避。

▽
▽
▽
オープンエデュケーションを活用した新たな高等教育モデルの模索

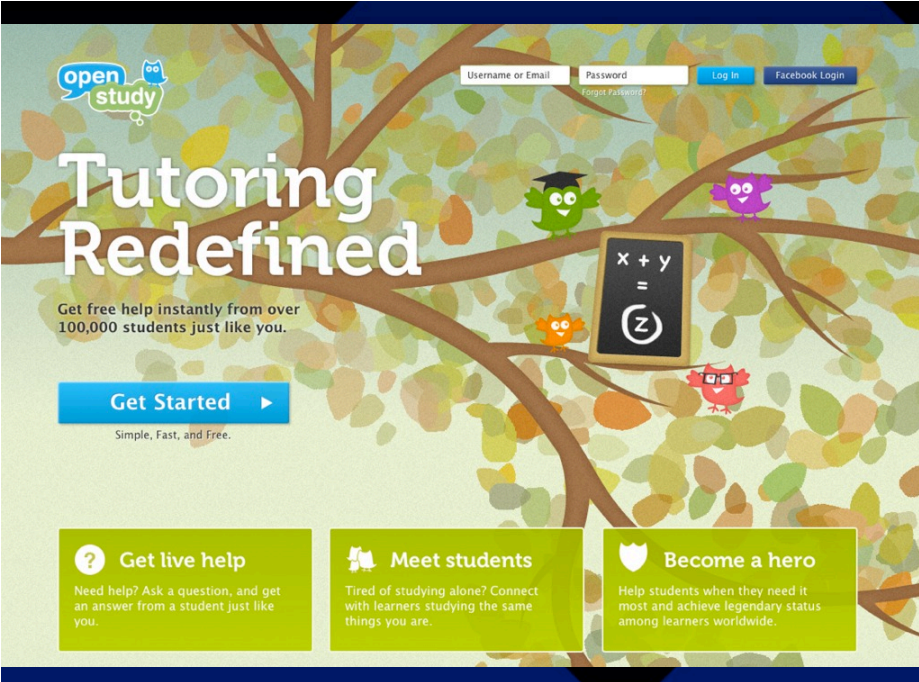
「ネット社会になり、情報はどこでも入手できる。そうすると、大学の使命は、学問を通じての師弟関係に収斂されていくのではないか」

- ピーター・ドラッカー

だが、その「師弟関係」すらもネットは変えつつある...

What is the 21st Century Education?

<http://www.youtube.com/watch?v=Ax5cNlutAys>



The banner features the OpenStudy logo in the top left. In the top right, there are login fields for 'Username or Email' and 'Password', with 'Log in' and 'Facebook Login' buttons. The main title 'Tutoring Redefined' is prominently displayed in the center. Below it, a sub-headline reads 'Get free help instantly from over 100,000 students just like you.' A blue 'Get Started' button with a right-pointing arrow is positioned below the sub-headline, with the text 'Simple, Fast, and Free.' underneath. The background is a stylized tree with colorful autumn leaves. Several cartoon owl characters are perched on the branches; one is green with a graduation cap, another is purple, and a third is red. A blackboard with the equation $x + y = z$ is also on a branch. At the bottom, there are three green boxes with white text: 'Get live help' (with a question mark icon), 'Meet students' (with a group of people icon), and 'Become a hero' (with a shield icon).

open study

Username or Email Password Log in Facebook Login

Forgot Password?

Tutoring Redefined

Get free help instantly from over 100,000 students just like you.

Get Started ▶

Simple, Fast, and Free.

Get live help
Need help? Ask a question, and get an answer from a student just like you.

Meet students
Tired of studying alone? Connect with learners studying the same things you are.

Become a hero
Help students when they need it most and achieve legendary status among learners worldwide.

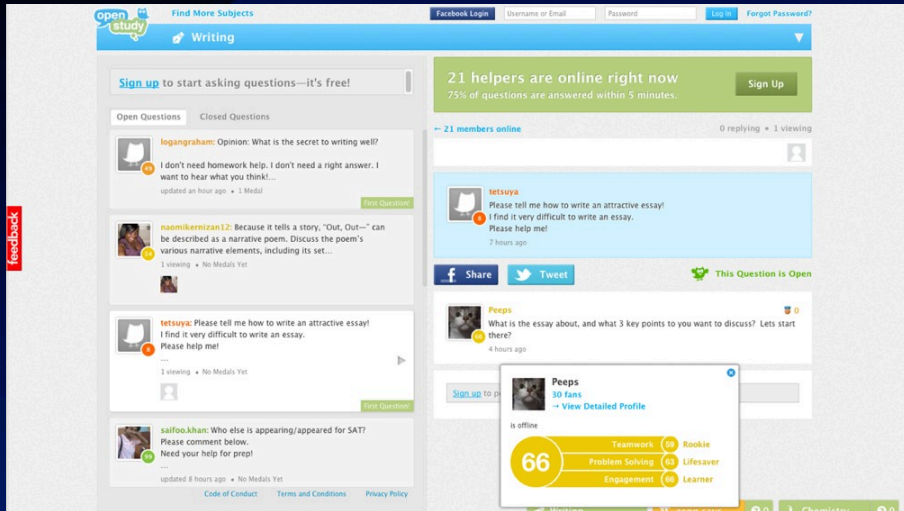
21st century education is about

- creativity
- cultural awareness
- problem solving
- innovation
- civic engagement
- communication
- productivity
- collaboration
- accountability
- exploration
- initiative
- responsibility
- leadership

Today, teachers must be, and learners must be

- innovators
- mentors
- entrepreneurs
- motivators
- illuminators
- catalysts
- teachers
- researchers
- synthesizers
- innovators
- explorers ...

OpenStudy : 世界中の学生が学び合い教え合う



The screenshot shows the OpenStudy website interface. At the top, there's a navigation bar with the OpenStudy logo, 'Find More Subjects', and login options. The main content area is titled 'Writing' and features a 'Sign up to start asking questions—it's free!' button. Below this, there are sections for 'Open Questions' and 'Closed Questions'. The 'Open Questions' section lists several questions with user avatars and timestamps. On the right side, there's a green box stating '21 helpers are online right now' and '75% of questions are answered within 5 minutes.' Below this, there's a section for '21 members online' with a list of users and their profiles. A 'Share' button is visible. At the bottom, there's a 'Feedback' button on the left and a 'Sign up to post' button on the right. The interface is clean and user-friendly, with a focus on community and learning.

open study

Find More Subjects

Facebook Login Username or Email Password Log in Forgot Password?

Writing

Sign up to start asking questions—it's free!

Open Questions Closed Questions

legengraham: Opinion: What is the secret to writing well?
I don't need homework help. I don't need a right answer. I want to hear what you think! ...
updated an hour ago • 1 Medal

naomikerizan12: Because it tells a story. "Out, Out—" can be described as a narrative poem. Discuss the poem's various narrative elements, including its set...
1 viewing • No Medals Yet

tetsuya: Please tell me how to write an attractive essay! I find it very difficult to write an essay. Please help me!
1 viewing • No Medals Yet

saffoo.khan: Who else is appearing/appeared for SAT? Please comment below. Need your help for prep!
updated 8 hours ago • No Medals Yet

Code of Conduct Terms and Conditions Privacy Policy

21 helpers are online right now
75% of questions are answered within 5 minutes. **Sign Up**

21 members online 0 replying • 1 viewing

tetsuya: Please tell me how to write an attractive essay! I find it very difficult to write an essay. Please help me!
7 hours ago

Peeps: What is the essay about, and what 3 key points to you want to discuss? Let's start there?
4 hours ago

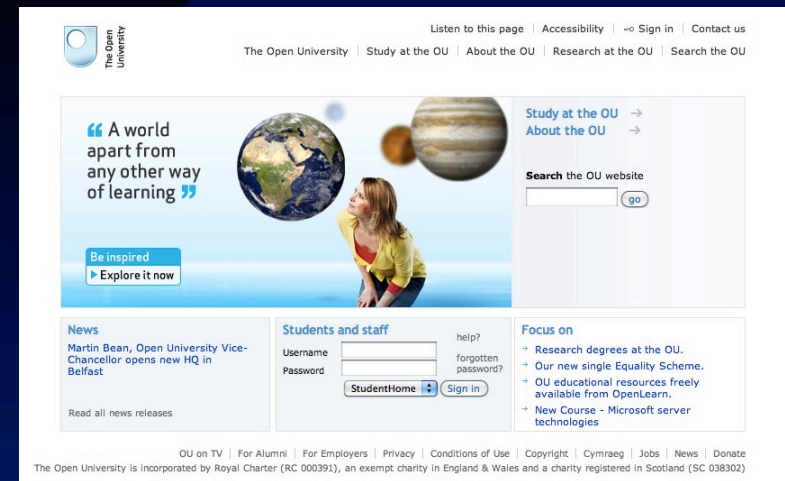
Peeps
30 Fans
View Detailed Profile

is offline

66 Teamwork Rookie Problem Solving Lifesaver Engagement Learner

Writing zepo says... Chemistry

UK Open University



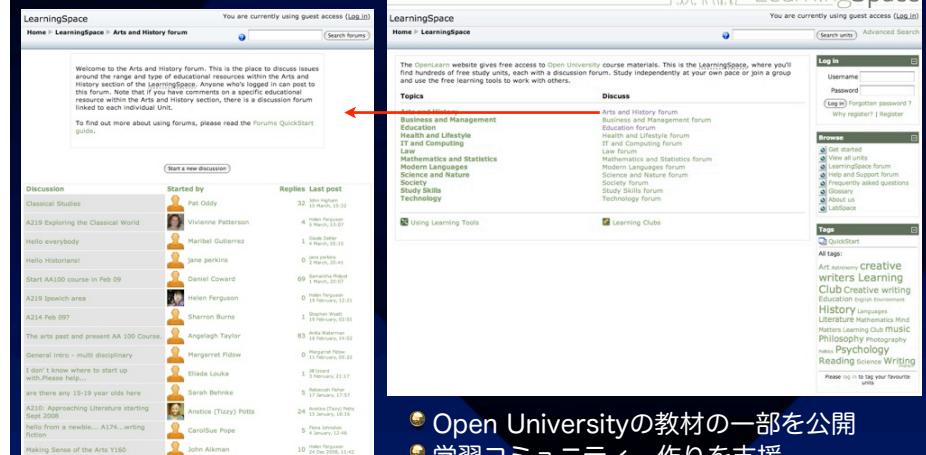
「今この教育界の激動の時代に、大学の教育も変革を余儀なくされると思います。その真っ只中にいる中で、私たち学生の身分ではその変革を見ているしかありませんが、ただそれに振り回されるのではなく、主体的に考え、取捨選択することが大切であろうと思います。変革の背景をきちんと理解していると、教育の目指す方向性がよりはっきりと分かり、より効率的に学ぶことができますと思います。」（工学部1年 中村拓哉君）

「（オープンエデュケーションを）積極的に利用したいと思った。具体的には、大学の講義の補助教材として使ってみたいと思う。（中略）京大OCWなどを利用して、講義の内容を完全に理解し、その理解をさらに深めたいと思う。」（文学部1年 足利聡太君）

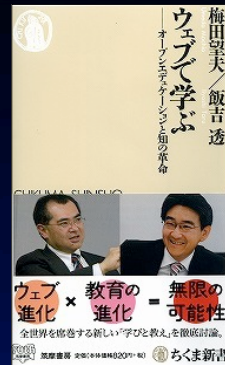
「ある事柄について本当に学びたい者同士がオンライン上でコミュニティを作り、議論などを交わしながら積極的に学ぶというのは、これまでには存在しなかった学習形態である。OpenStudyを通じてこのような学習形態を構築すれば、従来の何倍も効率よく、そして楽しく学習できることは間違いないと感じた。また、これは何も学ぶ側に関してのみ言えることではなく、教える側に関しても言えることである。」（経済学部1年 宮垣徹哉君）

UK Open University

OpenLearnプロジェクト



- Open Universityの教材の一部を公開
- 学習コミュニティ作りを支援
- LMSは、Moodleを利用



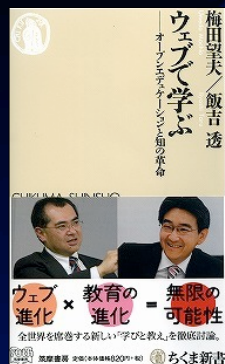
をテキストにしたポケゼミを通じ、京大の1年生たちは、何を感じ考えたか？

「ウェブが世界中に広まっていき、インターネットにアクセスできるという状況ならば、誰もが瞬時に情報を得ることができるという便利な社会になり、今や、インターネットは、我々の生活に欠かせないものになりました。それは、物心ついた時からインターネットが存在していた時代に生まれた私が、インターネットにアクセスできない世界など想像できないと感じることもわかります。そんな世の中に定着しているインターネットがあるからこそ、それを教育にいかし、学びたいという気持ちとやる気さえあれば、どこまででも貪欲に学ぶことができるという環境が整えられていているのだなと感じました。これは、「学ぶ」ということにおいて、貧富の格差や地域の格差などの障害が取り除かれるということで、つまりは、これからの時代は、「やる気」によって格差が生まれてくることになるのでしょう。」

- 小池美咲さん（関西学院大学久保田ゼミブログより抜粋）

「たしかにこの時代、学校や塾で教わることだけが学ぶことのすべてではありません。私は、高校や大学を出たら学ぶことは終わらだと思っていましたが、そういうわけにもいきません。本ではこの時代を「個人が一生学び続ける時代」と表現しています。この時代にふさわしい教育が21世紀のオープンエデュケーションです。オバマ大統領がオープンエデュケーション宣言をしたことによって、アメリカはプロジェクトを立ち上げ、オープンエデュケーションに大きな期待をしています。日本ではあまりオープンエデュケーションと聞かないのでまだまだアメリカに遅れているのかな、と思いました。」

- 角谷奈美さん（同上）



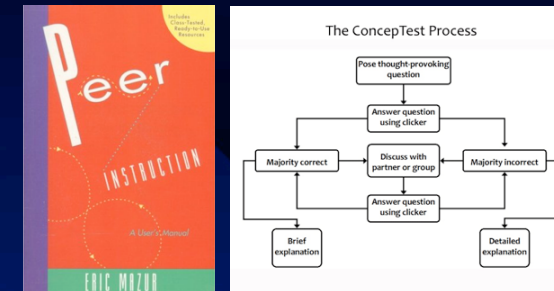
を読んで、今の大学生はどう思ったか？

UK Open University “in” Japan

The Open University Japan website features a blue header with the university's logo and navigation links. The main content area is divided into sections for the Business School MBA, accreditation details, and a Japan Open University program. The footer includes a 'Message from the President' and contact information.

Peer Instruction

基礎的な概念や手法に対して学生の注意を集中させながら、講義中の学生同士のインタラクションを通い深い理解を促す教授・学習方法



Open University “of” Japan

The Open University of Japan (OUJ) website features a blue header with the university's logo and navigation links. The main content area is divided into sections for the AAOU 2012 conference, the 'Lifelong Learning for All' program, and a 'Message from the President'. A large red 'OU Wars!' text is overlaid on the page.

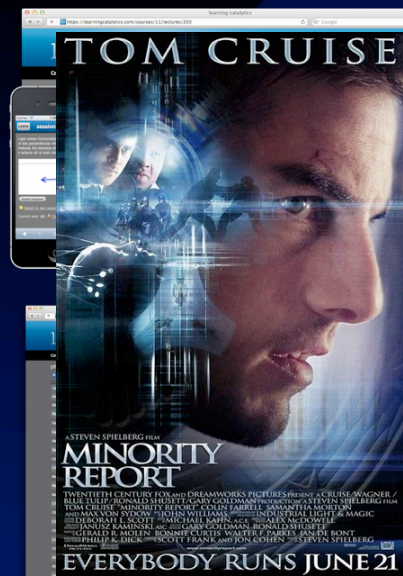
学習情報分析を利用しアクティブな協調学習を最適化

The 'learning catalytics' platform is shown on both desktop and mobile devices. The desktop view displays a detailed data analysis interface with a table of student performance metrics and a bar chart showing the distribution of scores. The mobile view shows a simplified interface with a focus on the data analysis results.

Prof. Eric Mazur's Group
@Harvard University

映画 "Minority Report"
教育版？

学習情報分析を利用しアクティブな協調学習を最適化




Prof. Eric Mazur's Group
@Harvard University

映画 "Minority Report"
教育版？

Open Badges for the Recognition of Open Learning オープンな学習の認定のためのオープン・バッジ

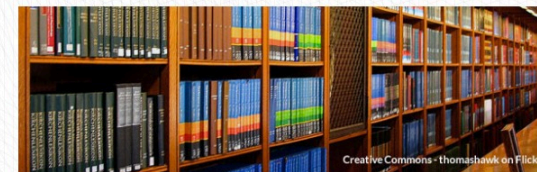
EDUCATION

Open Badges
Recognizing learning wherever it happens.

Your Academic Data
Giving learners access to their personal learning profile.

Education Data Standards
A shared vocabulary for education data.

[+ See all education datasets & tools](#)



Creative Commons - thomashawke on Flickr

Learning Registry
Surfacing the best online learning resources for teachers and students.

Higher Education Datasets
Comprehensive data about colleges and technical/vocational schools across the United States.

Open Data for the Open Educational Advancement オープンな教育の進展のためのオープン・データ



WELCOME TO EDUCATION DATA COMMUNITY
This web site serves as a central guide for education data resources including high-value data sets, data visualization tools, resources for the classroom, applications created from open data and more. These datasets have been gathered from various agencies to provide detailed information on the state of education on all levels, from cradle to career and beyond. Check back frequently because the site will be updated as more datasets and tools become available.

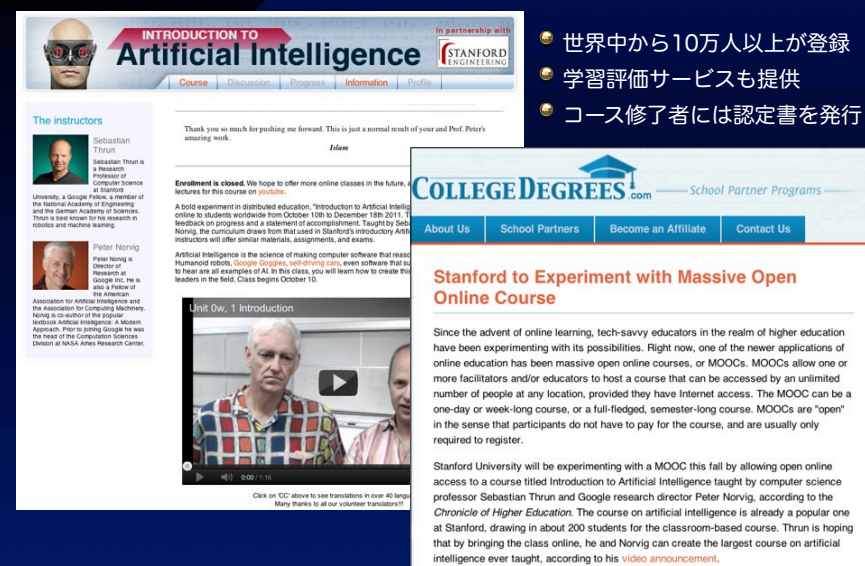
Post-Secondary Universe Survey 2010 - Directory information
[View More](#)

Developers
Interested in developing new apps for education? Check out the opportunities and resources available.

Teachers
Looking for resources, lesson plans, and ways to energize your students? Start here to learn more! Or, are you using data in the classroom? Created a cool app? Developed a lesson plan? Tell us your story, let us feature your class or have us come to your school!

Students
Have you done something cool for your school? Looking for data for your science fair or school paper? You've found the right place to get what you need and share what you've done!

Massive Open Online Course



INTRODUCTION TO Artificial Intelligence
In partnership with STANFORD ENGINEERING

The instructors
Sebastian Thrun is a Research Professor of Computer Science at Stanford University, a Google Fellow, a member of the National Academy of Engineering, and the German Academy of Sciences. Thrun is best known for his research in robotics and machine learning.
Peter Norvig is Director of Research at Google Inc. He is also a Fellow of the American Association for Artificial Intelligence and the Association for Computing Machinery. Norvig is co-author of the popular textbook Artificial Intelligence: A Modern Approach. Prior to joining Google he was the head of the Computational Sciences Division at Intel's Ames Research Center.

Enrollment is closed. We hope to offer more online classes in the future. Lectures for this course on YouTube.

A bold experiment in distributed education. Introduction to Artificial Intelligence is now available online to students worldwide from October 18th to December 18th 2011. The feedback on programs and a statement of accomplishment. Taught by Sebastian Thrun, the curriculum draws from that used in Stanford's introductory level instructors will offer similar materials, assignments, and exams.

Artificial intelligence is the science of making computer software that needs Humanoid robots, Google Goggles, self-driving cars, even software that so to hear are all examples of AI. In this class, you will learn how to create the leaders in the field. Class begins October 18.

Unit 0w. 1 Introduction

CollegeDegrees.com — School Partner Programs —
About Us | School Partners | Become an Affiliate | Contact Us

Stanford to Experiment with Massive Open Online Course

Since the advent of online learning, tech-savvy educators in the realm of higher education have been experimenting with its possibilities. Right now, one of the newer applications of online education has been massive open online courses, or MOOCs. MOOCs allow one or more facilitators and/or educators to host a course that can be accessed by an unlimited number of people at any location, provided they have Internet access. The MOOC can be a one-day or week-long course, or a full-fledged, semester-long course. MOOCs are "open" in the sense that participants do not have to pay for the course, and are usually only required to register.

Stanford University will be experimenting with a MOOC this fall by allowing online access to a course titled Introduction to Artificial Intelligence taught by computer science professor Sebastian Thrun and Google research director Peter Norvig, according to the *Chronicle of Higher Education*. The course on artificial intelligence is already a popular one at Stanford, drawing in about 200 students for the classroom-based course. Thrun is hoping that by bringing the class online, he and Norvig can create the largest course on artificial intelligence ever taught, according to his [video announcement](#).

Massive Open Online Course: MITx

MIT launches online learning initiative

'MITx' will offer courses online and make online learning tools freely available.

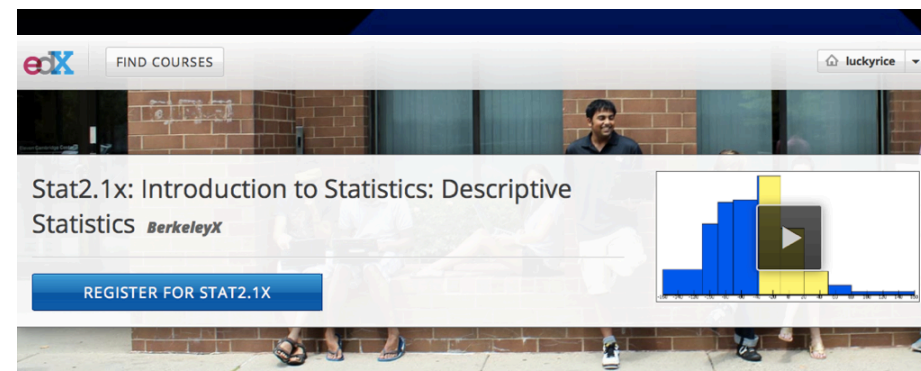
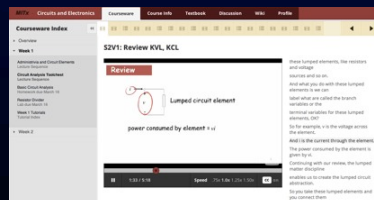
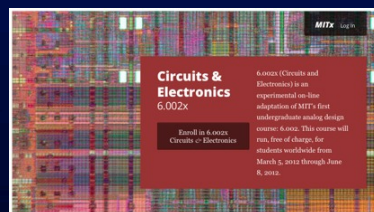
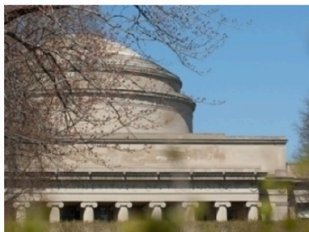
News Office

December 19, 2011



MIT today announced the launch of an online learning initiative internally called "MITx." MITx will offer a portfolio of MIT courses through an online interactive learning platform that will:

- organize and present course material to enable students to learn at their own pace
- feature interactivity, online laboratories and student-to-student communication
- allow for the individual assessment of any student's work and allow students who demonstrate their mastery of subjects to earn a certificate of completion awarded by MITx
- operate on an open-source, scalable software infrastructure in order to make it continuously improving and readily available to other educational institutions.



overview

ABOUT STAT2.1X

Introduction to Statistics

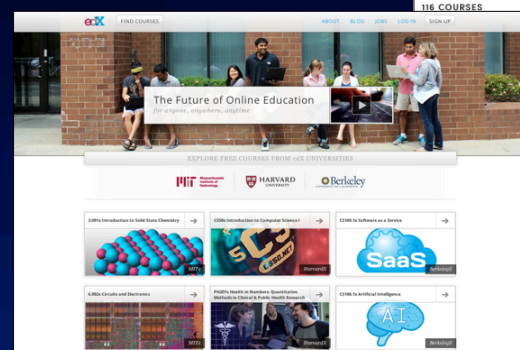
We are surrounded by information, much of it numerical, and it is important to know how to make sense of it. Stat2x is an introduction to the fundamental concepts and methods of statistics, the science of drawing conclusions from data.

The course is the online equivalent of Statistics 2, a 15-week introductory course taken in Berkeley by about 1,000 students each year. Stat2x is divided into three 5-week components. Stat2.1x is the first of the three.

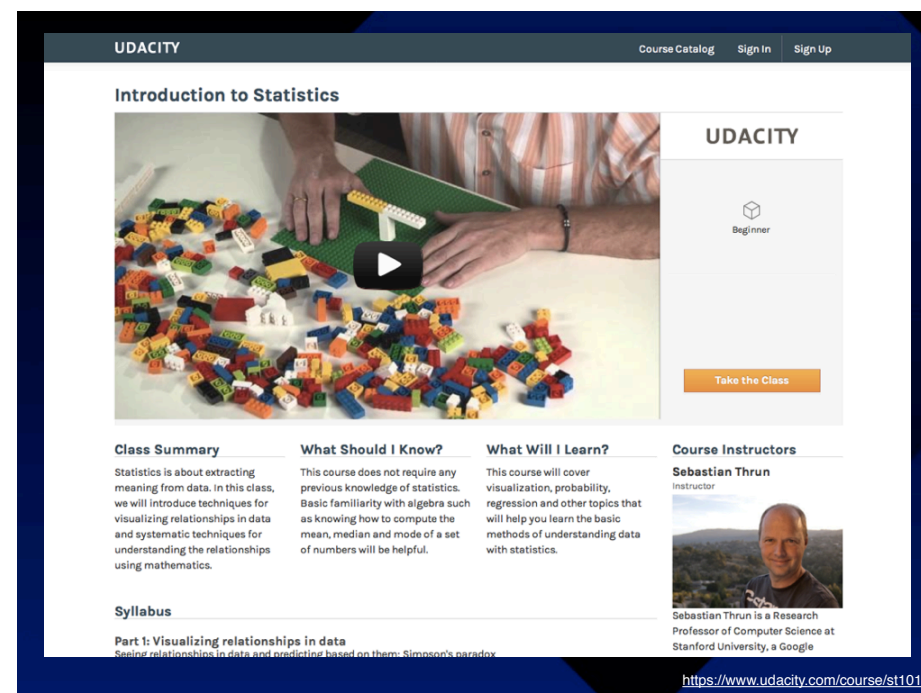
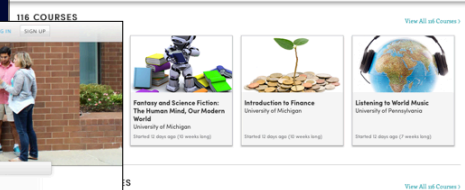
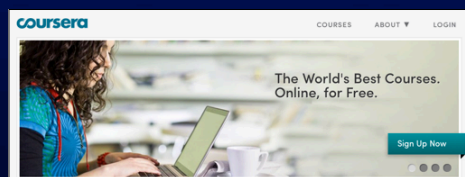
<https://www.edx.org/courses/BerkeleyX/Stat2.1x/2013> Spring/about

MOOC Wars? Coursera vs. edX

スター教師たちが参戦する
「教えのバトル・ロワイヤル」



大学 (組織) → 教員 (個人)
というシフト



Real Credits by MOOCs?

coursera

Supported by
**BILL & MELINDA
GATES foundation**

American Council on Education to Evaluate Credit Equivalency for Coursera's Online Courses

We are pleased to have recently announced that we have begun working with the American Council on Education (ACE) to initiate a credit-equivalence evaluation of a select few of the courses offered on Coursera.

This new third party evaluation, conducted through ACE's College Credit Recommendation Service (ACE CREDIT®), has the potential to make these select courses completed on Coursera eligible for college transfer credit at institutions choosing to accept the ACE recommendations.

ACE CREDIT® is a recognized authority in assessing non-traditional education experiences and helping students gain credit for courses and exams taken outside traditional degree programs. ACE CREDIT®'s review process enlists a team of academic faculty to assess courses and exams for the purpose of making college credit recommendations. These recommendations are generally accepted by more than 2,000 colleges and universities in the US, opening the possibility for students enrolled at one of these institutions to transfer credit into their degree programs. The decision to accept ACE CREDIT recommendations is fully subject to the policies of the school and degree program a student wishes to apply it towards.

Western Governors University



Western Governors University website header and navigation. The header includes the WGU logo, contact information (1.866.225.5948), and navigation links (DEGREES & PROGRAMS, ADMISSIONS, TUITION & FINANCIAL AID, ABOUT WGU, THE WGU EXPERIENCE). The main banner features a graduate and the text "Learn more. Become more. Online." Below the banner are four columns representing different degree programs: Teachers College, College of Business, College of Information Technology, and College of Health Professions. Each column lists the degree level (Bachelor's or Master's) and the accreditation status (Accredited!). A sidebar on the right lists "WGU NEWS" and "SCHOLARSHIPS AT WGU". The footer contains copyright information and links to contact WGU, employment, news, site map, privacy policy, and M/WGULogin.

The New York Times
The Opinion Pages

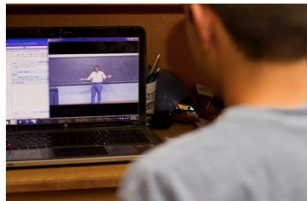
ROOM for DEBATE

Search All NYTimes.com
Go

MAY 8, 2012

Got a Computer? Get a Degree.

INTRODUCTION



Andrea G. Farfan for The New York Times
A student watches an online economics class in real time at the University of Florida.

Last week, Harvard and the Massachusetts Institute of Technology announced a new nonprofit partnership to offer free online courses. Those who complete the course will get a certificate of mastery and a grade, but no official credit.

Should Harvard and M.I.T. offer credit for these courses and even allow students to obtain their degrees online? Indeed, doesn't it make more sense for elite colleges and universities to do this?

READ THE DISCUSSION »

DEBATERS



The Promise of Lower Costs

RICHARD VEDDER, CENTER FOR
COLLEGE AFFORDABILITY AND
PRODUCTIVITY

*These efforts present the possibility of
sidestepping dysfunctional student aid
programs and barriers to entry.*



Enhancement, Not Replacement

SEAN DECATUR, OBERLIN COLLEGE

*These courses are not a substitute for in-
person classes, and students completing
them should not receive credit toward a
degree.*



A Way to Reach Minorities

KATHY ENGER, NORTHERN LIGHTS
LIBRARY NETWORK

*Online higher education can lower racial
barriers, and for this reason alone, Harvard
and M.I.T. should offer these courses for
credit and degrees.*



More Options Means More Learning

JEREMY GLEICK, SOPHOMORE, UCLA

*It doesn't have to be just Psych 101. Colleges
can teach the history of children's literature,
or the Second Punic War.*



What About the Lab Work?

WALTER LEWIN, PROFESSOR OF
PHYSICS, M.I.T.

*A certificate would be nice. But how do I
know John did all the work, and that it
wasn't actually done by Mary?*

Western Governors University

- アメリカの19州の協力によって創設されたオンライン公立大学
- 通常の大学のように自前の履修課程に合わせた講義を提供していない
- 学生が十分な知識や技能を持ち合わせていることが試験やレポートで確認されれば、「学生が、どのような教材を使って、どのように学んだかに関係なく、評価基準に従って単位を認定し、必要な単位数が揃えば学位を授与する」という制度を採用(学生は、オープンエデュケーションをフル活用できる)
- 学位取得にかかるコストは、普通の私立大学の六分の一程度
- 学士課程を最短二年間で修了可能なので、学生(特に社会人学生)が経済的・時間的に得られるメリットも大きい
- 学生のための24/7オンライン学習支援(教員やチューターによるカウンセリングなど)やオンライン図書館などの学習リソースなどの提供

WESTERN GOVERNORS UNIVERSITY
ONLINE. ACCELERATED. AFFORDABLE. ACCREDITED.

DEGREES & PROGRAMS | ADMISSIONS | TUITION & FINANCIAL AID | ABOUT WGU | THE WGU EXPERIENCE

REQUEST INFO → APPLY NOW → 1.866.225.5948

Home :: Degrees & Programs :: Teachers College :: Licensure Programs :: BA Mathematics :: Course of Study

BA Mathematics (5-9 or 5-12) Course of Study

BA in Mathematics, Courses of Study/Assessments
WGU offers degrees, not classes. As a competency-based online university, progress through your degree program is determined by demonstrating your competence through carefully designed assessments and completion of a capstone project. As a student in this program, you will complete the assessments (courses) listed below in order to graduate. These assessments are required. Each assessment has a course of study, which contains a study guide and recommended learning resources for you to use while completing said assessment. Your assigned mentor will help guide you through this process.

For ease of understanding, WGU has assigned competency units to each of its assessments as indicated below. A competency unit is equivalent to a semester credit hour of learning. WGU terms are six months in length. During a typical term, students will be expected to complete at least 8 to 9 competency units. Grades are assigned on a Pass/Not Pass basis; a "Pass" at WGU is equivalent to a letter grade of "B" or better.

Speak to an [Enrollment Counselor](#) for more information about these assessments and their courses of study.

BA in Mathematics (5-9)

Course	Course of Study/Assessments	Competency Units
MYC1	Fundamentals of Foundational Perspectives of Education	3
AGC1	Foundations of College Mathematics	3
BBC1	Communications Foundations	2
CLC1	Reasoning and Problem Solving	3
QTT1	Finite Mathematics	2
SST1	General Education Social Sciences: Analysis and Applications	1
SSC1	General Education Social Sciences	2
IWC1	Literature, Arts and the Humanities	2
IWT1	Literature, Arts and the Humanities: Analysis and Interpretation	2
QOT1	College Algebra	3
CNC1	U.S. Government and Constitution	3
LCC1	Survey of Literature	3
LCT1	Survey of Literature: Analysis and Interpretation	3
ROT1	Pre-Calculus	3
TOC1	Probability and Statistics I	3

APPLY NOW → REQUEST INFO →

NBC Nightly News Reports on WGU.

"The dreams of 19 governors have become [WGU Grad Angie Gonzalez's] dream fulfilled."
—Tom Costello
NBC Nightly News with Brian Williams

[Watch the video](#)

IN THE NEWS...

"While such programs [like Western Governors University] are now the exception, I want them to be the norm."
—US Secretary of Education Arne Duncan

オープンエデュケーションは
偶然のブームではなく

Peer-To-Peer U & U of The People

世界中の有志によってボランティア的に運営され、学生は、無料で講義やグループ学習に参加したり、試験やレポートなどによる学習評価を受けることができる。

これらの新たな高等教育機関を通して受けられる教育によって、単位や学位を取得できるようになれば、高等教育の在り方は大きく変わる。

P2PU Learning for everyone, by everyone, about almost anything

Home Courses News About Us Contact Us Login/Signup (Not Our Previous Site) Search

Welcome to P2PU
Round 3 is officially underway, but it's a new website, more courses, a bigger community, two languages, and things will be a little rough around the edges at the beginning. We'll be back to our relaxed and serene efforts and look. In case, you are looking for our past phase courses, go to: <http://archive.p2pu.org>.

Sign up for the next round of courses is tentatively scheduled to open in August 2010. However, you can still access all the course materials and even follow the discussions. Check out the running courses here.

The Peer 2 Peer University (P2PU) is an online community of open study groups for short university-level courses. Think of it as an online book club for open educational resources. The P2PU helps you navigate the wealth of open education materials that are out there, creates small groups of motivated learners, and supports the design and facilitation of courses. Students and future grad recognition for their work, and we are building pathways for formal credit as well.

University of The People
Term 3 Application Deadline: May 27, 2010

ABOUT US
ACADEMICS
ADMISSIONS
FEES
THE METHOD
SUPPORT US

YOUR OPPORTUNITY IS HERE
TAKE IT >

TALKING ABOUT US
"I didn't have a third class as an applicant. What a surprise when I was told I had been accepted. I started to study!" —Loren

SUPPORT US
Because education should be a right, not a privilege.
• Donate time
• Donate money

LEARN MORE
Learn about our academic programs and register to usePeople
• The programs
• Applications

OCW COLLEGE/UNIVERSITY

University of the People (UoPeople) is the world's first tuition free online university dedicated to the global advancement and democratization of higher education.

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必然的な教育の進化段階

*"If we teach **today** as we taught **yesterday**,
we rob our children of **tomorrow**."*

- John Dewey (1916)

ウェブ × 教育の = 無限の
進化 進化 可能性

教育とは無限の可能性を信じること

*"If we **learn today** as we **learned yesterday**,
we rob ourselves of **tomorrow**."*



“The way that we are going to ratchet up
our species is to take the best and to
spread it around to everybody, so that
everybody grows up with better things.”

Steve Jobs

オープンエデュケーションは
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必然的な人類の進化段階

オープンエデュケーションは
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必然的な教育の進化段階

最善の学びと教えを最大多数の人々に！

Be iOpen!

Join Us in Opening Up Education!