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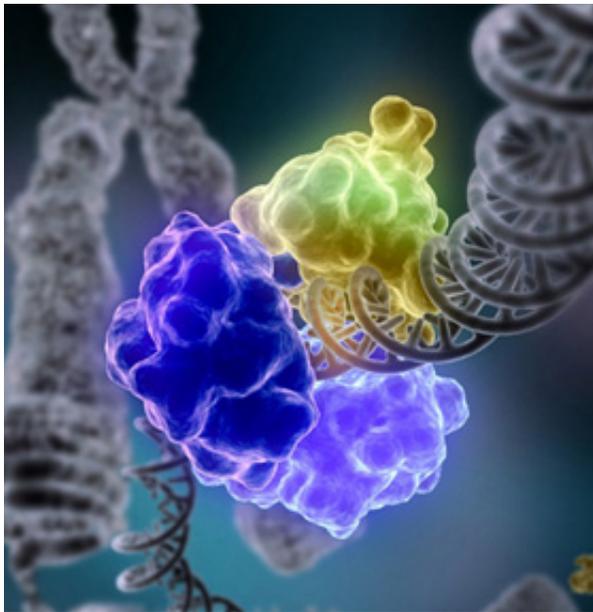


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## Repairing DNA



An enzyme repairing DNA. Image from [NIGMS](#) by Tom Ellenberger, Washington University School of Medicine.

Every day your DNA is battered by a fearful variety of damaging agents, from ultraviolet light to inimical chemicals. These assailants inflict over 20,000 lesions per cell per day. Not surprisingly, how well your cells repair the tatters and flaws in their DNA is crucial to your health.

Now a team of MIT researchers has developed a way to rapidly test the efficacy of four different kinds of DNA repair.

[>Read the news article about this advance](#)

Dear <<First Name>>,

OCW is always open. We're serving up quality open learning from a menu of 2,200 courses, available day or night, 365 days a year.

But we need your help to continue to serve as a key resource when you need it most.

If you haven't already and can afford to do so, please consider [donating to OCW](#) during our spring campaign.

Your donation, large or small, makes a difference.

If you have already donated, we thank you for being a member of our community of supporters.

Make your donation count even more with a matching gift from your company. To find out whether your company has a matching gift policy, please enter your employer's name in the [MIT matching gifts page](#).

Two members of this team, Jennifer Jordan and Zachary Nagel, recently published an OCW course on DNA repair that provides an overview of the subject, including how DNA repair pathways can be damaged, how the damage can lead to disease, and how an understanding of these pathways can be used in the prevention and management of disease. The course is [7.346 DNA Wars: How the Cell Strikes Back to Avoid Disease after Attacks on DNA](#).

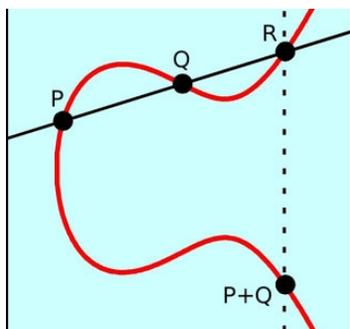
This course is one of many Advanced Undergraduate Seminars offered by the Biology Department at MIT. These seminars are tailored to students with an interest in using primary research literature to discuss and learn about current biological research in a highly interactive setting.

[>Visit the MIT Biology Department's site for Advanced Undergraduate Seminars](#)

Over the years, OCW has published materials from many of these seminars, which can cover very different subjects under the same MIT curriculum number. The seminars range from course 7.340 through course 7.349.

[> See the seminars listed on OCW's Biology Department page](#)

**New Courses**



[18.783 Elliptic Curves](#)



[14.75 Political Economy and Economic Development](#)

- [2.06 Fluid Dynamics](#)
- [17.588 Field Seminar in Comparative Politics](#)
- [21A.461 What is Capitalism?](#)



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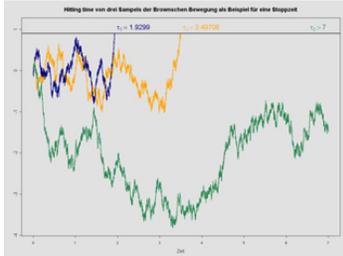
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## Updated Courses



[15.070J Advanced Stochastic Processes](#)



[20.320 Analysis of Biomolecular and Cellular Systems](#)

- [6.685 Electric Machines](#)
- [11.309J Sensing Place: Photography as Inquiry](#)
- [12.007 Geobiology](#)

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## OCW Educator



“No one could figure out what a math lab was. Doesn’t a laboratory have Erlenmeyer flasks and things? Where are the flasks? Where’s the equipment in mathematics?” So observes Professor Haynes Miller in the introductory video to [18.821 Project Laboratory in Mathematics](#).

OCW had wanted to publish 18.821 for a number of years, but the course did not meet OCW’s standard criteria for a publishable course. Unlike most courses taught at MIT, this course has no set body of knowledge that the instructor hopes the students will retain and use after the course ends. The course has no textbook and no exams, for example.

Instead, students are made to confront mathematics the way it appears to a working mathematician. That is, they are offered the opportunity to experience the frustration and excitement of doing mathematical research. They work in teams on projects that are open-ended and may change every time the course is offered. They write papers in a style appropriate to journals in the field.

Happily, 18.821 was perfectly suited to OCW’s new Educator project, which enhances OCW publications for educators. On the course site, Professor Miller and his teaching colleagues describe the structure and logistics of the course, the process of teambuilding, the selection of projects, the trickiness of guiding students without overdirecting them, and much more.

This is an innovative course model that fosters student creativity and shows mathematics as a dynamic and ever expanding field. Professor Miller hopes that the model will be adopted by other mathematics departments in the United States.

[>See other OCW courses in the Educator project](#)

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## Highlights for High School



OCW staffers just before the opening of the USASEF.

In April, members of the OCW team traveled to Washington D.C. for the third U.S.A. Science and Engineering Festival. This is the largest STEM education event in the country, with over 750 exhibitors presenting everything from hands-on chemistry to flying robots.

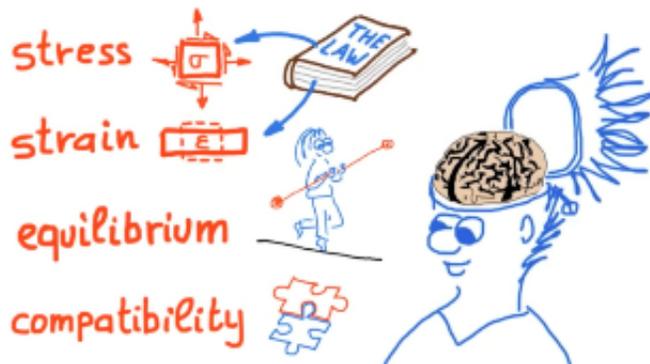
There was never a dull moment at the OCW booth. The team spoke to hundreds of visitors who were interested in learning more about OCW and Highlights for High School. Thank you to everybody who stopped by, especially the MIT alumni who took the time to say hello!

Remember, you can keep up with Highlights for High School on Twitter: @MITOCW #OCWHighSchool.

[> Find out more at Highlights for High School](#)

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## MITx News



You stand frozen before a bowl of guacamole and two bowls of chips. Which is the superior chip for dipping, you wonder, the triangular chip or the rectangular one?

The answer awaits you in 2.01x Elements of Structures, a course offered on the edX platform that starts on June 3. This course gives you the foundations of structural mechanics, or “the mechanical behavior of deformable structural elements,” as the course site says. Its applications range from building safe bridges to measuring the stiffness of body cells to choosing the right chip for your dip. While you study structural mechanics, you will learn to use MATLAB, and visualize the loading inside structural elements using the Finite Element method.

[>Visit the 2.01x Course Site](#)

[>View other upcoming MITx courses on edX](#)

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Shared knowledge has larger impact in the world that



knowledge lying in books or hidden behind walls.

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I am one of them. Thanks OCW for this."

- Jayram, Independent Learner, USA

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