



Current Events in Context



Photo of snowboarder catching air. Image by [J. Patz](#).

The Science Behind Sports

The XXII Olympic Winter Games are underway in Sochi, Russia. Athletes from around the world compete in numerous outdoor sports including Alpine Skiing, Freestyle Skiing, and Snowboarding.

The laws of speed, gravity, and balance play an important role in just about all games. These sports are excellent examples of physics and engineering in action. In snowboarding for instance, as the athlete drops into the half-pike, they fight the pull of gravity while pumping their legs to increase their speed. Swooping to the top of the pike, they try to execute the tricks that will score them the most points, all the while converting their kinetic energy to potential energy and back.

The following courses explain some of the scientific principles in these extreme sports.

- 8.01SC Physics I: Classical Mechanics: This is a first-year, first-semester course that provides an introduction to Classical Mechanics. It covers the basic concepts of Newtonian mechanics, fluid mechanics, and kinetic gas theory. Note the sections on Translational Kinematics, Force and Newton's Laws of Motion, and Momentum.
- 2.003 Engineering Dynamics: The session on Velocity, Acceleration, and Rotational Motion offers problems and concept questions to test your understanding.
- SP.235 Chemistry of Sports: Although physics and engineering concepts are important in sports, the molecular, chemical, biological aspects of the athlete are just as valuable. This course also looks at nutrition, anatomy, and physiology.



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

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Fostering and encouraging diversity is an important aspect of being a leader, as discussed in Lecture 2. (Image courtesy of Sanja Gjenero. Used with permission.)

Do you understand the philosophy behind leadership, the importance of teamwork, and how and why it's important to self-reflect?

If you aren't sure (or even if you are), then take a look at the [Leadership Training Institute](#) course.

It's more than lecture notes. The instructors encourage you to scream, run, think, reflect and learn in your own way.

> [Find out more about the Leadership Training Institute](#)

MITx News



This image—acquired by the Advanced Land Imager (ALI) on NASA's Earth Observing-1 (EO-1) satellite on February 8, 2014—offers a view of Krasnaya Polyana and the ski facilities for the Olympics. Image courtesy of [NASA Earth Observatory](#).

Global Warming, Winter Weather and the Olympics – Five Leading Climate Scientists Weigh in

The *New York Times* ran an article Friday on [global warming and its influence on the extreme weather in the US and the Sochi Olympics](#). It's a good round up of how to understand the interactions between global and local weather phenomena.

To learn more about the science behind global warming, check out the upcoming MITx MOOC, [12.340x Global Warming Science](#).

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