



# Moores Hills

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## News

## Bringing Up Bobby

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Pointes for Style  
*Fall Puts Fashion on Its Toes*

Authentically Ideal  
*The Past in Perfect Present*



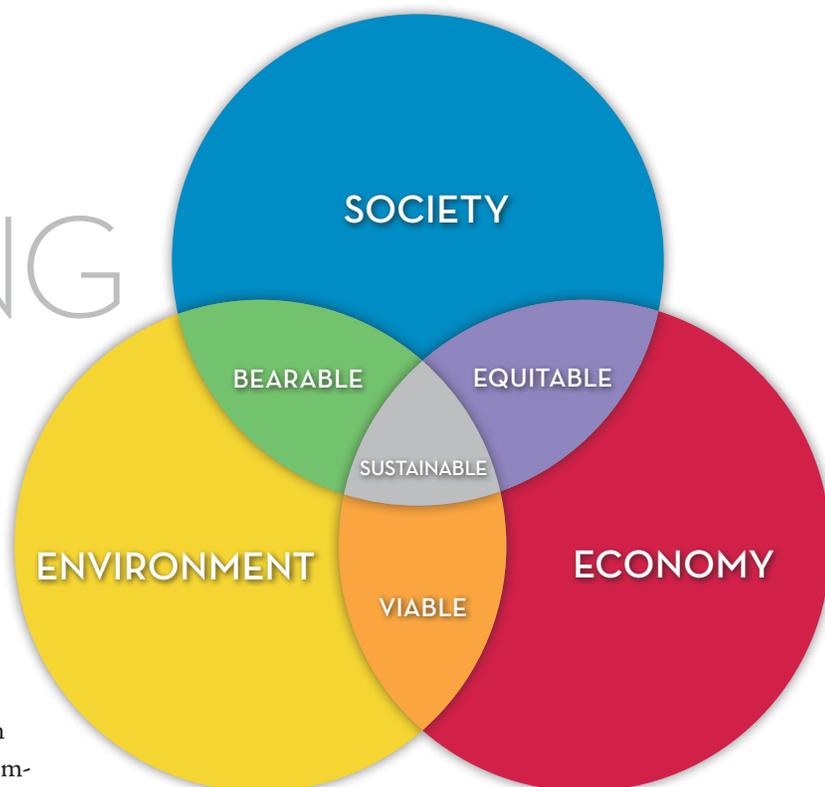
# MIXING IT UP

By Mary Ellen Ternes

Once upon a time, education followed fairly linear tracks: people learned calculus and physics to get a degree in engineering, or earned a degree in biology on their way to medical school, or a degree in economics on the way to business school. Now, the world is becoming a whole lot more integrated as our planet keeps getting smaller and we keep getting smarter.

Have you read lately about using organic molecules to self-assemble computer chips? Or the rapidly growing new field of synthetic biology? Or making diesel fuel from bacteria? How about nanotechnology? (Don't even get me started on nano, because I'm a complete geek.) It's not surprising that the National Research Council and the National Academy of Engineering have proposed including engineering in K-12 education, along with science, technology and mathematics ("STEM"), to support the development of skills identified as "essential for the 21<sup>st</sup> century" such as problem solving, systems thinking, collaboration and communication. That's way beyond the three Rs! But as our problems and problem solving evolve, so must our traditional disciplines. Even the standard "pre-med" curriculum is being reconsidered: with the increased pace and scope of medical breakthroughs, broader medical education is being proposed to encourage interdisciplinary core competencies, including math, statistics, modeling, measurement and scale and quantitative reasoning.

In revising our approaches to traditional disciplines, sometimes we simply combine fields of study – like biology and math, or medicine and engineering – but there are also whole new horizons. Sustainability is one of the most significant new areas of study, constituting a new emphasis in traditional degrees and even a degree in its own right.



Sustainability combines social science, economics and science in a multidisciplinary approach that is critical to developing sustainable models, approaches and designs. Sustainability, the concept of meeting our needs today without sacrificing the ability of our children to meet their needs tomorrow, was defined in terms of environment, social and economic concepts at the June 14, 1992 United Nations Conference on Environment and Development, also known as the "Earth Summit," with something called "Agenda 21."

Agenda 21 is a 21<sup>st</sup>-century plan of action to implement sustainability globally, nationally and locally by organizations of the UN, governments and major groups in every area in which humans directly affect the environment. At the 1992 Earth Summit, 178 countries voted to adopt Agenda 21.

Some folks working with sustainability focus primarily, or even exclusively, on the environment. But the social and economic aspects are equally important and inextricably intertwined. Think of a Venn diagram, which uses circles overlapping with each other to illustrate relationships between and among substantive areas. In the classic Venn diagram of sustainability, three circles overlap representing environmental, social and economic issues. Sustainability exists where the social overlap with environmental is bearable, the economic overlap with social is equitable and the environmental overlap with economic is viable.

## Living Well *Your Involvement, Your Environment*

To promote sustainability in today's businesses, governmental structures, policies, laws and education, one must master more tools than are typically provided in any one discipline. As an example, Columbia University's new Ph.D. in Sustainable Development requires 10 core courses in human ecology, economics (macro, micro, environmental and resource), natural science, science policy and, of course, sustainable development and its politics.

Engineers are also focusing on sustainability. An engineer should know enough about environmental issues and economics to design projects or processes that minimize pollution and maximize sustainability, and thus ensure that resource limitations, such as lack of water, wouldn't have an adverse impact on a project's success. New sustainable engineering programs integrate social, environmental and economic considerations into traditional engineering design methods along with consideration of the complete product and process lifecycle. With this integrated approach, engineers are able to minimize environmental impacts across the entire lifecycle while, at the same time, maximizing benefits to social and economic stakeholders.

An MBA candidate might also want to specialize in sustainable business approaches. A few years ago, Stanford was ranked as having the best sustainable MBA program, based on the Aspen Institute's "Beyond Grey Pinstripes" survey, originally created by the World Resources Institute. The survey provides an alternative ranking of business schools based on successful integration of social and environmental stewardship into the traditional economic curriculum. The survey found more and more MBA programs offering courses in ethics, corporate social responsibility and environmental sustainability. And who better to address some of the issues expected in coming years, such as water scarcity, labor issues and poverty alleviation, than sustainable business leaders?

As an interdisciplinary professional myself, I have found tremendous utility in combining disciplines. And, probably more importantly – broadening our perspective and collaborating with others makes our work a whole lot more fun! Here's to expanding our approaches! ■

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*Mary Ellen Ternes, Esq. is a former chemical engineer from both the EPA and industry. She is currently a shareholder with McAfee & Taft and co-chair with Richard A. Riggs, Esq., of its Renewable and Sustainable Energy Group, and is serving a three-year term as City of Nichols Hills Environment, Health and Sustainability Commissioner.*

### BE INFORMED

To read about self-assembling computer chips:  
[www.nature.com/news/2008/081015/full/news.2008.1171](http://www.nature.com/news/2008/081015/full/news.2008.1171)

To read my favorite source of geeky science news:  
[www.sciencedaily.com](http://www.sciencedaily.com)

For a new approach to medical school, see Howard Hughes Medical Institute's "Scientific Foundations for Future Physicians":  
[www.hhmi.org/grants/sffp](http://www.hhmi.org/grants/sffp)

For Columbia's SD Ph.D.:  
[www.columbia.edu/cu/gsas/departments/sustainable-development/bulletin](http://www.columbia.edu/cu/gsas/departments/sustainable-development/bulletin)

For the Association of Advancement of Sustainability in Higher Education's listing of undergraduate and graduate sustainable engineering programs:  
[www.aashe.org/resources/engineering](http://www.aashe.org/resources/engineering)

To see Aspen's ranking of top sustainable MBA programs:  
[www.beyondgreypinstripes.org/rankings/topten](http://www.beyondgreypinstripes.org/rankings/topten)

To read more about sustainable MBAs:  
[www.greenbiz.com/news/2005/10/18/survey-stanford-tops-list-sustainable-mba-programs](http://www.greenbiz.com/news/2005/10/18/survey-stanford-tops-list-sustainable-mba-programs)