

Sustainability Science

Environment@MSU

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What is sustainability science?

Formal definition:

“Sustainability science is an emerging field of research that seeks to promote sustainable futures by developing a better understanding of the complex interactions between human and natural systems. “

—Ruffolo Curriculum on Sustainability Science V1.0, Harvard University

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Sustainability science is an approach that integrates knowledge across existing disciplines to address critical challenges of sustainability. In doing so, sustainability science identifies a number of key conceptual and methodological issues that cut across disciplines. Examining these issues facilitates integration of knowledge and its practical application while encouraging the application of knowledge to practical problems.

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U.S. National Research Council. 1999. *Our Common Journey: A Transition Toward Sustainability*. Washington, D.C.: National Academy Press. (Bob Kates and Bill Clark, eds.)

This started a social movement!

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U.S. NAS. Roundtable on Science and Technology for Sustainability
(<http://sustainability.nationalacademies.org/roundtable.shtml>)

AAAS. Forum: Science and Innovation for Sustainable Development
(<http://sustsci.aaas.org/>)

PNAS. Sustainability Science section
(<http://www.pnas.org/site/misc/sustainability.shtml>)

Harvard. Sustainability Science Fellows and Ruffolo Curriculum
(<http://www.cid.harvard.edu/sustsci/overview.html>)

What is sustainability science?

Ruffolo sustainability science curriculum modules:

1. Introduction to Sustainability Science
2. Principles and Values in Sustainability Science
3. Trends and transitions
4. Resilience theory
5. Tools for complex systems analysis
6. Introduction to Governance in Sustainability Science
7. Introduction to the Analysis of Governance for Sustainability
8. Governance of Cross-scale Human- Environmental Interactions
9. Transdisciplinarity
10. Linking Action with Knowledge
11. Evaluation

Modules in which MSU faculty are authors of a “key reading.”

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