

PROPOSED SPECIAL PROGRAM: SUSTAINABILITY MINOR

Submitted by: Warren K. Wray, Provost and Executive Vice Chancellor

To: Michael Schulz, President, Missouri S&T Faculty Senate

Background and Academic Rationale

In order to help prepare Missouri S&T students for careers in today's society, a cross-disciplinary "Sustainability Minor" is proposed. This proposal reflects the input of our Emerging Trends committee (per FY 2009 Tactical Plan action 2.4.6) that educational opportunities for our students were needed in the areas of green manufacturing, carbon footprint, and sustainability. This proposal also results from a suggestion by several faculty members who have approached me regarding the need for educational opportunities focused in this area.

The minor would be open to all S&T students, and would be comprehensive in covering both socio-political aspects, as well as technological and scientific aspects related to sustainability. I request the creation of a Sustainability Minor Special Program to fully develop the minor and propose the specific course and related minor requirements, as well as the administrative structure for the management of the minor.

A general framework for the minor and tentative list of courses has been developed and reviewed by the Green Campus Committee. It would be the task of the proposed Special Program (which would be elected as described below) to review the general framework that has been suggested and finalize all aspects of the program. Following its development, the minor proposal would be submitted to the Faculty Senate for approval.

I strongly believe that this cross-disciplinary approach is the most viable approach to help prepare our students tackle the problems they will face as climate change actions, carbon emissions cap and trade, energy efficiency and many related topics affect our industries of the future.

Potential Program Academic Aspects

Tentative List of Courses

The academic aspects shown below are preliminary and are only meant to highlight the possible nature of the program. These aspects are subject to change and definition by the elected Special Program representatives before submission of the minor. Students would be required to take 15 semester credit hours (five 3-SCH courses) from the two lists below, with at least two courses from each list and at least 9 hours from outside their home department.

List 1:

- History 270: History of Technology to 1900
- History 271: 20th Century Technology and Society
- History 274: Recent American Art and Technology
- History 275: History of Science
- History 361: American Environmental History
- Pol. Sci. 315: Principles of Public Policy
- Pol. Sci. 325: Science, Technology & Politics
- Pol. Sci. 350: Politics of the Third World
- Econ 345 Energy Economics
- Econ 340 Environmental & Natural Resource Economics

List 2:

- EnvE 301 Sustainability: looks at society-wide issues and the ethos of sustaining our social advancement and infrastructure development
- CE/Arch E 301 Green Engineering (construction focus)
- GE 352 International Engineering Design
- ChE 301 Alternative Fuels
- ME 381/AE 311 Introduction to Composite Materials and Structures
- GE 236 Basic Weather: (Climate response to anthropogenic and naturally-occurring carbon release)
- ChemE 301 Hazardous materials management
- EnvE 261 Introduction to Environmental Engineering
- ME/AE 301 Alternative Energy Engineering
- New Course – Biological Sciences/Geology/English Caribbean Marine Biodiversity/Geology/Literature
 - Course focus on interdisciplinary issues, including biodiversity and anthropogenic impacts.

Special Program Function, Membership and Representative Election

Special Program Function

A Sustainability Minor Special Program will be organized following the approval of this proposal. This committee will:

1. Determine the requirements of the minor.
2. Develop the list of courses that will constitute the minor.
3. Identify the processes by which the minor will be reviewed.
4. Identify the processes by which new courses will be added to the approved list of courses, or courses may be deleted.
5. Submit the minor proposal for approval by the Faculty Senate, following the campus minor proposal process.
6. Elect a Program leader, who will have the responsibilities defined in the Faculty Bylaws.
7. Propose advising approaches for students who will be enrolled in the program.
8. Develop other aspects of the minor, as well as procedures for administration and oversight of the minor, as needed.

Nomination and Election of Special Program Representatives

Membership of the Special Program will consist of eight full-time, ranked faculty members according to the following academic disciplines:

- Two members from the programs that are included in the Engineering Discipline Specific Curriculum Committee (DSCC);
- Two members from the programs that are included in the Science DSCC;
- Two members from programs that are included in the Social Sciences DSCC; and
- Two members from programs that are included in the Arts and Humanities DSCC.

Nominations will be solicited by the office of the Vice Provost for Academic Affairs, who will carry out the election. Faculty will vote by discipline area. Individuals receiving the highest votes within each discipline area will be elected to serve. In subsequent years, the VPAA will carry out necessary elections to identify the Program representatives.

As indicated in the Faculty Bylaws, election of Special Program Representatives will be by, and from, members of the faculty. Self-nominations are permitted. Following the standard practice of the Rules, Procedure & Agenda committee, the names of all nominees submitted will appear on the ballot that is forwarded to the General Faculty; none will be removed. The role of the office of the Vice Provost for Academic Affairs will be solely to administer the process.