UNIVERSITY OF MICHIGAN-FLINT
NEW COURSE REQUEST

Complete this form entirely. Add separate page(s) if space provided is not sufficient for your response.
** * * This new course is not effective until this request has been reviewed by the Provost. ** * *

Effective Term for course (beginning term and year): Fall 2010
(* cannot be earlier than the next published course schedule)

School/College: CAS
Department: ERS

Course Subject Code: GEO
Course Number: 180

Full Course Title: Global Environmental Systems and Sustainability

Course Title Abbreviation: Global Env. Syst. and Sustain
(30 characters maximum including spaces):

Credit Hours: Total _____3____ or Variable _____ to _______
Contact Hours (if different): Lec _______ Lab _______

Repeat Status: (if applicable, enter “X” for one and total credits if any)
☐ Course may not be repeated for additional credit.
☐ Repeatable up to a maximum of ______ credit hours.
☐ Repeatable for an unlimited number of credit hours.

Course Level: (enter “X” for all that apply)
☒ Undergraduate (UG) ☐ Graduate (GR)

Is this same course (crosslisted and/or meeting together) also offered at the Graduate (Undergraduate) level?
If yes, please list Subj/Course Number: ____________________________

NOTE: if this course will be offered for both graduate and undergraduate credit, a separate page explaining distinctions in instruction and/or differing requirements for the two levels is required.

Is this course Crosslisted? No
If yes, please list crosslist Subj/Course Number(s): ____________________________

Corequisites: (must be taken concurrently):
Subject/Discipline Course Number

Prerequisites: Please list all prerequisites using UM-Flint Subject and course numbers and specific equivalents when necessary. Make certain that the language is clear when using “and/or” combinations and prerequisites that can be taken concurrently. (Note: CAS 300 level and above courses must have a prerequisite.)

None

Grading Mode: (circle one)
☐ Standard ABCDE (includes +/-)
☐ ABCDD-N
☐ ABCDN
☐ ABCC-N
☐ ABCN
☐ Pass/Fail

Can be reported as a Y grade?: Yes / No

Schedule Type: (circle one)
☐ Lecture/Discussion (L/D)
☐ Lecture/Lab (L/L)
☐ Laboratory (LAB)
☐ Field Work (FLD)
☐ Research (RES)
☐ Performance (PER)
☐ Ind Study, Dir Read (STU)

Distribution Credit: (please circle)
H S F N and/or NL
☒ GB HW FQ T FYE CAP FL
Registration Restrictions (Mark all that apply)

Class: Open only to (circle all that apply):
- Freshman (FR)
- Sophomore (SO)
- Graduate (GR)
- Junior (JR)
- Senior (SR)

College: Open only to (circle all that apply):
- All Students
- CAS students
- SEHS students
- SOM students
- SHPS students

Majors: Open only to (list majors):
- Open to all majors

Level: Open only to: (circle one if applicable)
- Undergraduate (UG)
- Graduate (GR)

Course Description (as it should appear in the Catalog): (attach additional page if necessary)

Introduction to the global distribution and characteristics of the world's energy sources, and how these factors influence the practices of agriculture, urbanization, transportation, and national energy use in different regions of the world. The prospects for global sustainability will be investigated within this context.

PLEASE SEE ATTACHMENT

Frequency this course will be offered (Fall, Winter, Spring, Summer, etc)

Will this course be offered as an evening course? ________________

Expected Enrollment ______________________

Purpose or objective of this course

Necessity for this course in the total curriculum or major

Summary of material to be covered in this course (attached syllabus optional)

What other courses offered by the University bear close relation to the content of this course? None

REQUESTED BY:

Department Chair

Date 2-5-10

Department Chair of Crosslist(s) or Prerequisite(s)

Date 2-9-10

Dean

Date

Dean of Crosslist(s) or Prerequisite(s)

Date

GECAC

Date

REVIEWED BY:

Catalog Editor

Date

Dean of Graduate Programs (Graduate courses)

Date

Provost (Undergraduate courses only)

Date

Catalog Coordinator (Registrar's Office)

Date
GEO 180 Attachment

Frequency this course will be offered (Fall, Winter, Spring, Summer, etc)

Once each academic year.

Will this course be offered as an evening course?

No.

Expected Enrollment: 60

Purpose or objective of this course

The purpose of this course is to acquaint students with the centrality of energy in global human-environmental systems such as agriculture, transportation, and buildings and whether the practices of energy use in these systems are sustainable.

Necessity for this course in the total curriculum or major

This course introduces the core energy and sustainability concepts within the proposed major.

Summary of material to be covered in this course (attached syllabus optional)

1. Energy – what it is
2. Types of energy – renewable, non-renewable
3. Energy resources and their global distribution – fossil fuels, geothermal, nuclear, wind, solar, hydropower
4. Human energy use
5. Social institutions related to energy use
6. Agriculture – types, global distribution, technological characteristics
7. Transportation – types, global distribution, technological characteristics
8. Buildings – types, global distribution, technological characteristics
9. A framework for evaluating sustainability
10. Applying the sustainability framework to existing agricultural, transportation, and building implementations; assessing their sustainability
11. Based on the evaluation: What are some ways energy management can be improved in different world regions?

What other courses offered by the University bear close relation to the content of this course?

None.
REQUEST FOR GENERAL EDUCATION DISTRIBUTION DESIGNATION

Directions: Please indicate which learning outcomes will be addressed in this course (place the corresponding number and outcome where indicated). A minimum of five learning outcomes must be addressed for a course to be eligible for general education distribution designation. Please provide a brief narrative as to how the course objectives/key concepts address each learning outcome selected, and indicate what tools for assessment will be used.

<table>
<thead>
<tr>
<th>Course Title: Global Environmental Systems and Sustainability</th>
<th>Department: ERS</th>
<th>Course Prefix: GEO</th>
<th>Course Number: 180</th>
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</thead>
<tbody>
<tr>
<td>No. 3 Learning Outcome: Demonstrate the ability to think critically</td>
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<tr>
<td>Narrative: Scientifically-informed planning and policy processes are introduced, and students will be required to evaluate the relative efficacy of different sustainable strategies in the global energy, water, and agricultural arenas.</td>
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<td>Assessment tools: Article review, plan and project review (World Bank, IMF, UN Environmental Program etc.)</td>
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<td>No. 4 Learning Outcome: Demonstrate the ability to think creatively</td>
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<td>Narrative: New strategies for sustainable environmental systems will be elicited from students throughout the course. A review will be conducted of historical approaches to sustainability (including primitive communal societies, pastoralism, early agriculture in the Fertile Crescent, Transcendentalism and New Urbanism). Students will be asked to develop their own ideas with respect to efficient energy, water, and land uses.</td>
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<tr>
<td>Assessment tools: Literature reviews, short projects and papers.</td>
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<td>No. 5 Learning Outcome: Produce competent written work</td>
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<td>Narrative: The development of a knowledge base in sustainability requires a survey of different writings from around the world. China now leads the world in the production of wind power and will soon be the leader in solar panel production. Students will read about the current developments in sustainability from the United Nations publications (e.g., Food and Agricultural Org., UN Environmental Program, national government publications) and comment on their prospects for helping to attain a sustainable planet.</td>
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<td>Assessment tools: Short review papers on current energy and natural resource-related topics</td>
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<td>No. 9 Learning Outcome: Demonstrate knowledge of economics, finance, and quantitative literacy; health and well being; and science and technology</td>
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<td>Narrative: Technology is often seen as a solution to the sustainability problem. For example, with better technology, we could desalinate all the water needed to satisfy earth's growing population. Not so fast. What about the cost of providing this service—and the public health challenges of providing ready access to potable water for the 2 billion people on earth (mostly in Less Developed Countries) currently lacking it?</td>
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<td>Assessment tools: Literature reviews, class discussions</td>
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<td>No. 12</td>
<td>Learning Outcome: Apply knowledge to complex issues such as social justice, globalization, economic growth and distribution, environmental sustainability, public health, etc, in increasingly broad spheres of influence</td>
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**Narrative:** The implementation of this learning outcome is closely related to No. 9 above. Explicit connections exist between economics, public health, and environmental sustainability. For example, subsidized agriculture in more developed nations leads to surplus production, which helps create exports of large amounts of grain to world markets. These exports have the negative impact of lowering the price, and often prevent developed nations from receiving an adequate price for their agricultural commodities on the world market. Furthermore, many countries still exhibit the "cash crop" orientation foisted upon them during their colonial period, and this results in energy and water use inefficiencies, and can lead to nutritional problems among the population.

**Assessment tools:** Specific readings, short papers and essays.