Course Syllabus for PA 5790, Fall 2019

Environmental Systems Analysis at the Food, Energy, Water Nexus

Humphrey School of Public Affairs
University of Minnesota
Room: TBD

Instructor:
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Office Hours: Room 158 HHH Time: TBD

Course objectives and learning goals:

- Develop skills in systems thinking in order to better understand, diagnose, and effectively communicate complex environmental challenges.
- Cultivate an awareness of the diverse viewpoints, incentive structures, and perspectives of key stakeholders affected by food-water-energy issues.
- Identify social, ecological, and technological dimensions of environmental systems and how they are interlinked over time and space.
- Analyze policy and governance aspects of food, energy, and water challenges, including the roles and capabilities of the market, the state, and civil society in solving these challenges.
- Gain exposure to new quantitative and professional skills and develop individual expertise in one or more areas of focus.

Required Texts:
This Blessed Earth: A Year in the Life of an American Family Farm, by Ted Genoways
The Control of Nature, by John McPhee (excerpts)
The Big Muddy: An Environmental History of the Mississippi, by Christopher Morris

Additional readings and resources will be provided on Canvas.
## Class Schedule:

*Subject to change with notice.*

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Skill/Activity</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/3</td>
<td>Overview of the food-energy-water nexus and contemporary policy contexts</td>
<td>Introduction to systems thinking</td>
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<tr>
<td>9/10</td>
<td>The global perspective: Sustainable development, planetary boundaries, and feeding the world without destroying the planet.</td>
<td>Integrated assessment modeling, Greenhouse gas accounting, part I</td>
<td>Draft research proposal abstract due</td>
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<tr>
<td>9/17</td>
<td>Food systems: How we got here and where are we going?</td>
<td>Greenhouse gas accounting, part I</td>
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<tr>
<td>9/24</td>
<td>Food systems: Standards, diets, and consumer choice</td>
<td>Life cycle assessment</td>
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<tr>
<td>10/1</td>
<td>Food systems: Interactions with water and energy</td>
<td>Science communication: ABT method</td>
<td>This Blessed Earth reflection due</td>
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<tr>
<td>10/8</td>
<td>Governance of food, energy, and water in Minnesota</td>
<td>Social network analysis</td>
<td>Concept Quiz I</td>
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<td>GHG or LCA assignment due</td>
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<tr>
<td>10/22</td>
<td>Water systems: A hydro-social perspective</td>
<td>Scenario analysis</td>
<td>Revised draft research paper due</td>
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<td>10/29</td>
<td>DIY Field Trip: No Class.</td>
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<td>10/28</td>
<td>The water and energy nexus: Renewable energy</td>
<td>Effective presentations: Assertion - Evidence method</td>
<td>DIY Field Trip Reports Due</td>
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<tr>
<td>11/5</td>
<td>Environmental justice</td>
<td>Measuring equity, best practices in community-engaged scholarship</td>
<td>Big Muddy reflection due</td>
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<td>11/12</td>
<td>Pipelines: Energy and water implications</td>
<td>Academics and advocacy</td>
<td>Concept Quiz II</td>
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<td>11/19</td>
<td>Mining: Energy and water implications</td>
<td>Facilitation and the art of hosting</td>
<td>Class presentations</td>
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<tr>
<td>11/26</td>
<td>Bright spots in the anthropocene: Searching for success stories</td>
<td>Environmental leadership and interdisciplinary</td>
<td>Class presentations</td>
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Resilience, sustainability, and transformation

Systems thinking part II: Leverage points

Class presentations

12/3

Final research paper due

Evaluation and Assignments: G = graded, NG = complete/incomplete

I. Research paper and associated products, 40% G, 10% NG
   A. Draft research paper proposal, (NG)
   B. Outline research paper, (NG)
   C. Draft research paper, (G) 5%
   D. Research memo for executive (2 pages), (G) 5%
   E. Press release (1 page), (G) 5%
   F. News headlines/tweets, (NG)
   G. Final research paper (G) 20%
   H. Class presentations (G) 5%

II. Book reflections (2 pages each), 10% + 10% (G)

III. GHG or LCA assignment, 10% (G)

IV. Concept quizzes, 10% + 10% (G)