Co-Curricular Opportunities for Experiential Learning: ENVS 410—The Campus as a Living, Learning Laboratory & the PUSC

Taking it to the Next Level: Strategies for Adaptation Across the Sustainability Curriculum
Wake Forest University, Winston-Salem, NC

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WMU’s Strategy for Bridging “The Gap”

• VISION: Engage the whole campus in building a “culture of sustainability”—
  HIGHER EDUCATION FOR A HIGHER PURPOSE

• Open & regular statements of this vision from top leadership

• Support high levels of active social learning for sustainability

• View the campus as a living, learning laboratory for real-world problem solving

• Model the behavior we seek—use the campus as a “test bed” for rapid prototyping of solutions

• Dripping Faucet Model of Change (strategic incrementalism can, over time, generate radical behavior change)

• Document our work, evaluate, and reflect on/learn from our “successes & messes”

• Make our efforts VISIBLE!
ENVS 410—The Campus as a Living, Learning Laboratory—Thumbnail Sketch

- Challenge students to identify an “unsustainability issue” on campus.
- Bring in campus leaders & staff to discuss how WMU functions, in practice.
- Each student writes a detailed proposal for researching, documenting, reflecting on, reporting, & responding to their unsustainability issue.
- The whole class reviews, critiques, & ranks each proposal.
- Coalesce into teams & restructure projects—create an action plan!
- Use 1/2 of remaining class to work, one half to lecture & meet with groups as necessary to successfully address projects.
- Intense mutual accountability with weekly progress reports. Lots of timely, feedback! (students will grade each other in the end).
- Final Project: Students produce a report thoroughly documenting their analysis and producing a proposal(s) for administration to respond.
- Prepare for presentations to President—start 2 weeks in advance with at least 3 practice sessions before the whole class!
- Oral final exam—meet individually with each student to asses detailed content knowledge as well as integrated problem solving skills... & get ideas for improving the class (close the loop).
Western Michigan University Greenhouse Gas Inventory

**Institutional Data**
- Student Enrollment (FTE): 24,433
- Campus Population (FTE): 27,471
- Maintained Square Footage: 6,667,730
- Gross Square Footage: 8,000,000
- USDA Hardiness Zone: 6
- Heating Degree Days: 7,014
- Cooling Degree Days: 97

**Emissions Data**
- Baseline Year: 2008
- System Boundaries: Operational Control
- Gross Emissions: 128,859 MT eCO₂
- Emissions/Enrollment (FTE): 5.2 MT eCO₂
- Emissions/Campus Population (FTE): 4.6 MT eCO₂
- Emissions/1,000 Square Feet: 19.0 MT eCO₂

**Emissions Calculation Tool:** Clean Air-Cool Planet

**BACKGROUND**

Our GHG inventory began as a class project (Dr. Glasser’s Campus as a Living, Learning Laboratory Class) to explore the feasibility of signing onto and complying with the ACUPCC. Presenting our preliminary results to President Dunn and his Universitywide Sustainability Committee had a significant influence on his decision to sign on to the ACUPCC in July, 2009. WMU now has the responsibility to expand on our social learning for sustainability efforts by drafting a climate action plan (CAP). We are currently facilitating this process by evaluating HE GHG inventories and CAPs to learn what constitutes current best-practice. Through these initial evaluations we have identified some preliminary insights, which may have the potential to streamline GHG accounting and improve CAPing.

**INSIGHTS**

*Everything is Significant:* Before beginning the data collection process we were faced with the challenge of deciding what system boundaries and scopes to include. The ACUPCC requires all three scopes to be covered, but only requires commuting and air travel to be covered in scope III. We were faced with the decision to cover only what was required, or be dig a bit deeper. We decided to dig deeper, and by doing so we realized that we had accounted for 10,321 MT eCO₂ that would have otherwise been excluded (8.1%).

**Campus Collaboration:** Completing our comprehensive GHG inventory in one-semester required active participation from faculty and staff throughout campus—this project’s success reflects a broad-based collaboration. As important as our GHG inventory has been, perhaps more important is the effect of our project in helping to catalyze a campus learning community around planning for sustainability.

**Social Learning Chain Reaction:** Completing a comprehensive GHG inventory in one semester demonstrates the high-level of quality possible from studentrun initiatives and the critical role that students can play in capacity building for campus CAPing. President Dunn and the PUC are working to engage the entire campus in building a culture of sustainability by modeling our sustainability commitments and learning from others. We are currently engaged in an externally funded project to assess best practice in GHG reporting and early progress in CAPing. Building a culture of sustainability on campus creates an atmosphere that welcomes student run initiatives and collaboration between students, faculty and staff.

**Estimation from Main Sources:** Since completing our GHG inventory we have begun the process of creating an evaluation method for estimating an institution’s total emissions based on three main categories: stationary combustion, purchased electricity, and commuting. Presently we have applied this method to 30 institutions, and have found that on average these three categories make up roughly 85% of an institutions gross emissions. If this evaluation method proves successful, we will have identified a quick and convenient way to accurately estimate the total emissions from an institution with only three, readily available data points. This would allow HE institutions to benchmark themselves annually without completing a full inventory every year. At this point we are limiting this evaluation to institutions whose scope II emissions include only purchased electricity, and have a thorough scope III assessment.

**Normalization:** One of our main goals is to explore the feasibility of creating sound methods for comparing and benchmarking similar institutions. This is a difficult and subtle task as HE institutions vary widely in terms of climate, operational and programmatic structure, and demographics. An example is eCO₂/ft², where some institutions report based on maintained while others base their normalization on gross square footage—yielding results that often differ by 25%.

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1. System Boundaries: We covered emissions from operations on Main Campus (West Campus, Oakland Campus, East Campus), and the Engineering Campus, Parking Lot Campus.
EcoMug

Get Your Mug | Use Your Mug | Lug Your Mug

Each year Western Michigan University spends over $32,000 to purchase Styrofoam® cups, paper cups, and plastics lids. There are additional “upstream” environmental and energy costs with manufacturing the disposable beverage and “downstream” costs associated with the collection, transport, and disposal. On campus we purchase over 1/2 million disposable cups, which generate over 5 tons of waste.

The EcoMug Program to respond to this campus sustainability opportunity. The EcoMug:

- is a 15 oz. dual-wall, recyclable, stainless-steel travel mug
- is **FREE** to all incoming first year and transfer students
- offers discounts at Campus Cafés and local businesses
- Dining Halls for Breakfast and Late Night Carry-out

With your participation, the EcoMug will help eliminate these harmful “upstream” and “downstream” costs while saving you money.

Learn More about the EcoMug’s History!
Student Contributions by Semester at Sixty-Six Colleges and Universities (U.S. Dollars)


Projected Sustainability Fee Revenue (Annual Total $482,760 USD)

- Sustainability Fund: $313,794
- Student Green Jobs: $72,414
- Sustainability Office: $96,552

What we have before us are some breathtaking opportunities disguised as insoluble problems.

*John W. Gardner*

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