NRES 285 - Student Sustainability Ambassadors

Tentative Syllabus

Spring 2020 Zero Waste SWATeam Recommendation for the creation of Student Sustainability Ambassadors course and program

# *Purpose:*

In our increasingly developed world, buildings are where many people live much of their lives. They are where people live, eat, learn, and work. While top-down sustainability approaches are important, it is necessary to understand how they can be applied from the bottom-up, and this includes at building scale. The buildings of this university serve many different purposes, ages, and levels of sustainability. There is a need for understanding how sustainability goals, including but not limited to those outlined in the Illinois Climate Action Plan (iCAP), can be achieved in the various kinds of university buildings. With collaboration of building managers, Student Sustainability Ambassadors will serve to meet this need, and further increase sustainability on campus. In addition they will provide key monitoring data at building scales that is essential to making successful change. Student Sustainability Ambassadors will have five main tasks: Investigation, Data Collection, Education, Innovation, and Evaluation. These tasks will be central to the syllabus.

**Investigation:** Students will investigate current sustainability practices, relying in part on iCAP goals and objectives. In addition, students will interview users of the buildings. These interviews will gauge the knowledge of sustainable practices in those buildings and identify issues that building users believe are important.

**Data Collection**: As the course progresses, students will monitor identified practices and effects of any changes implemented. They will collect both quantitative and qualitative data.

**Education:** The students will create initiatives to educate building users and the greater community in regard to sustainable building practices and iCAP initiatives.

**Innovation:** Students will formulate solutions to problems identified in their buildings and help to implement them where possible.

**Evaluation:** Once the course is over, the students will evaluate the effect of their contributions and changes.

# *Course description:*

Students will be divided into teams of 2­­-3 for a particular building. They will work on the five goals in this building for the entirety of the course. We will work to provide a list of buildings that meet the following criteria 1) building managers are interested and passionate about this program and want to participate 2) there is a variety of building types, ages, and functions and 3) will be easily accessible to the students.

This course will take place over two semesters in one academic year. The first semester will be devoted to sustainability education and training of students as well as the goals of investigation and data collection, and evaluation. The second semester will be primarily focused on continuing data collection as well as the goals of education and innovation. By choice of the students, the second semester may also involve a personal research project.

 The course will be conducted in a ‘blended’ fashion. This means that there will be both online and in-person portions of the class. There will be one in-person lab section for 3 hours and one in-person discussion section for 1 hour weekly. The lab section will be reserved for taking class field trips or designated for personal building visits. The discussion section should stress that students from different buildings discuss their work and learn from each other.

# *Prerequisites:*

There are no prerequisites to this course, and it is open to all grade levels.

# *Student Course Objectives:*

1. Provide essential information and data to the University of Illinois that will be used to increase campus sustainability
2. Develop problem-solving skills to tackle real-world sustainability issues
3. Build leadership, monitoring, and communication skills
4. Describe the role universities play in sustainability and what it is for a university to be sustainable, drawing on current literature in this field
5. Develop applied research methods
6. …

# *Grading:*

We do not want grading to be a limiting factor to students interested in this course. In addition, many of the assignments and tasks required of students cannot be graded in a traditional way. For this reason, we will be grading coursework based on participation and effort. Some assignments are capable of being graded in the traditional manner, such as the final writing assignment or final presentation, so we may consider grading traditionally for these assignments. To account for this, we will offer multiple extra credit opportunities. The assignments for each semester will be different, so graded content will vary between semesters as well.

Semester 1:

Weekly quizzes: 10%

* Participation only. Used to gauge students understanding of reading and lecture content as well as outline key concepts we hope students take from that week (total #: TBA)

Class attendance: 10%

* Measured using sign in sheets or iClicker questions

Weekly building evaluations: 40%

* These assignments will be the data collection portion of the course. This portion of the class is heavily weighted due to its essential nature to the structure of the class. (total #: TBA)

Writing assignment(s): 10-15%

* There will be one (or more) writing assignments regarding class concepts as well as the interviews conducted in the Investigation portion (total #: TBA)

Discussion Posts: 10%

* (total #: TBA)

Final Presentation: 10%

* Presentation about something they learned during the course (more detail later)

Peer evaluation: 5%

* Students will be assigned buildings in teams of 2-3. This assignment will help assess the contributions of team members and ensure that no one is penalized for the actions or inactions of their teammates

Considering up to 10% in extra credit

Semester 2:

Weekly Quizzes: 15%

* Participation only. Used to gauge students understanding of reading and lecture content as well as outline key concepts we hope students take from that week

Class attendance: 15%

* Measured using sign in sheets or iClicker questions

Weekly building evaluations: 40%

* These assignments will be the data collection portion of the course. This portion of the class is heavily weighted due to its essential nature to the structure of the class.

Writing assignment(s): 10%

* There will be one (or more) writing assignments regarding class concepts

Final Presentation: 15%

* Presentation about something what they did in their buildings regarding the goals of Education and/or Innovation

Peer Evaluation: 5%

* Students will be assigned buildings in teams of 2-3. This assignment will help assess the contributions of team members and ensure that no one is penalized for the actions of their teammates

Considering offering up to 15% in extra credit for those who complete the research project OR the research project could be completed for James Scholar Credit

# *Course Materials*

We do not want textbook prices or access to affect participation in this course. Due to this we will provide reading material to students from various sources. If a textbook is adopted, it is important that is accessible and free online or in the library.

Sample Sources:

Illinois Climate Action Plan 2020

*The Sustainable University - Progress and Prospects* edited by Stephen Sterling, Larch Maxey, and Heather Luna (Routledge, 2014)

*The Sustainable University - Green Goals and New Challenges for Higher Education Leaders* James Martin and James E. Samuels (Johns Hopkins University Press, 2012)

Association for the Advancement of Sustainability in Higher Education (AASHE) Annual Reports (2019)

Case Studies from other Universities

# *Course Schedule*

Format:

**Week #**

1. Topics Covered &/or Field Trips

Readings:

Assigned materials:

Semester 1

Note: “Assigned” ≠ Due that week

**Week 1:**

1. Introduction to the course and goal of program
	* Ask students what THEY think should be included in the course.
		+ What are issues they notice in buildings they have classes in, live in, work in, etc
		+ This will help us structure the course as to maximize their benefit and learning
2. Building assignments
	1. Give students an option so that they will not be limited by personal accessibility reasons (i.e. too far away from where they live, etc)

Readings: Syllabus

Assigned: Syllabus Quiz, Pre-Course survey

**Week 2 & 3**

1. Introduction to Sustainability
2. Guest Lectures and meetings with Building Managers

Readings: TBA

Assigned: Readings Quiz, Building Purpose and Function Assignment (possible discussion post) (Ask students to Visit building and determine the different functions and purposes of the building (i.e. living, eating, office, learning, etc). Have them take pictures and write a short paragraph about their experience)

**Week 4**

1. Climate Change
2. Illinois Climate Action Plan
	1. Overview of plan; importance in this course

Readings: iCAP 2020 Introduction

Assigned: Readings Quiz

**Week 5:**

1. Energy 1 – Cover current energy initiatives ([Retrocommissioning RCx](https://icap.sustainability.illinois.edu/project/retrocommissioning-rcx), [Energy Incentive Conservation Program EICP](https://icap.sustainability.illinois.edu/project/energy-conservation-incentive-program-ecip), [Energy Dashboard](https://icap.sustainability.illinois.edu/project/energy-dashboard-project), Illini Lights Out, and others listed on iCAP portal)
2. Field trip to facilities and services

Readings: iCAP 2020 Energy Chapter, [RCx Fact Sheet](https://icap.sustainability.illinois.edu/files/project/201/RCx%20Fact%20Sheet.pdf)

Assigned: Readings Quiz, Field Trip Discussion Post

**Week 6**

1. Waste
2. Field Trip to waste transfer station

Readings: iCAP 2020 Zero Waste Chapter, [AASHE UT Austin Case study](https://hub.aashe.org/browse/presentation/22807/Bringing-Buildings-on-Board)

Assigned:   Readings Quiz, Field Trip Discussion Post

**Week 7**

1. Purchasing – guest lecture from procurement staff member?
2. POSSIBLE field trip to Association for Sustainability in Higher Education (AASHE) Student summit (Sunday, October 4 in Milwaukee, Wisconsin) – funding possibilities TBD

Readings: TBA

Assigned: Readings Quiz, Field Trip Discussion Post

**Week 8 – Projecting that the in-depth monitoring portion will commence so course load will lower**

1. Monitoring/data collection/research methods (possibly move to earlier week)

Readings: TBA

Assigned: Readings Quiz, Weekly Data

**Week 9**

1. Water

Readings: iCAP 2020 Water Chapter

Assigned: Readings Quiz, Weekly Data

**Week 10**

1. Land Use/Ag/Food/etc

Readings: iCAP 2020 Land use chapter

Assigned: Readings Quiz, Weekly Data

**Week 11**

1. Cleaners and other products used in buildings

Readings: Article – [“Cornell custodians embrace low-odor cleaning products”](https://news.cornell.edu/stories/2020/03/cornell-custodians-embrace-low-odor-cleaning-products)

Assigned: Reading Quiz, Weekly Data

**Week 12**

1. Interviews

Readings: TBA

Assigned: Readings Quiz, Weekly Data, Interview Writing Assignment

**Week 13**

**1.** Energy 2 – cover LEED buildings and certification and other energy related topics not covered in Week 5 - Energy. Field Trip to Abbot Power Plant.

Readings: Sustainable University Martins and Samuels Ch 13

Assigned: Readings Quiz, Weekly Data, Final presentation

**Week 14**

**FALL BREAK**

Extra credit: Document a sustainability initiative(s) in a building visited while on Fall Break. More detail TBA.

**Week 15**

1. TBA

Readings: TBA

Assigned: Readings Quiz, Weekly Data

**Week 16**

**FINALS**

Assigned: Final presentation due. May possibly move to Week 15

Semester 2

TBA. As mentioned above, semester two will focus on continued data collection, education, and innovation. Students can pursue an optional research project based from their data as well. More details to come later.

Course Materials may include:

[Turning the Page - A Behavior Change Toolkit for Reducing Paper Use](https://www.aashe.org/wp-content/uploads/2019/10/Turning-the-Page.pdf)

Example of a research project that may be pursued:

Paper towels usage in a month:

Have students quantify the amount of paper towels used in a month (or more). This can be done by speaking with building service workers (BSWs). After learning this information, they can translate that amount into how many trees it takes, how much water, how much energy, etc and importantly: how much money is spent on that? Students could then do a cost-benefit analysis to see how much the university would save if it installed only hand dryers in these locations.

Furthermore, students could test a solution. For example, some bathrooms have signs on paper towel dispensers that remind people that paper towels come from trees so they should be mindful of how much they use. Students can create signs of this type and install them in restrooms for a month. They can then look at the data from that month’s paper towel usage to see if their signs made a significant difference.

Note: The course is designed to be taken by students who are present on campus. However, we have given a little thought to how the course might be arranged in the event that people are forced off campus, as has occurred in the Spring of 2020. We think it may be possible for students to do online research about the buildings with which they are associated. We could provide building plans, where possible. We could ask students to virtually (online) interview the building users. And even if students are not able to implement their ideas, they could perhaps submit their ideas as part of an online electronic portfolio (using the UIUC’s Digication platform, or others) which could feature recorded interviews, sketches, photos, critical reflections by each team member, etc.. Students could also do online peer evaluations, as could the instructors.