Environmental Innovation Practicum • ENTRE 443A/543A/B ENGR 498A and ENVIR 495A Autumn 2018
Tues., 4:00-5:50 pm, PCAR #290
Instructor: Deborah Hagen-Lukens, dlhagen@uw.edu, office hours: by appointment on Tuesdays

Environmental Innovation Practicum Course Syllabus

Course description: This Practicum’s goal is to help students discover how cleantech solutions and other environmental innovations can and are beginning to address our most pressing environmental issues, and learn how they can be part of those solutions. The Environmental Innovation Practicum (EIP) is part speaker series, part business concept creation. Students will complete required weekly readings and attend a series of talks given by a wide array of subject matter experts. Leveraging the class’s cross listing between the Foster School of Business, The College of the Environment and The College of Engineering, students will form cross-discipline teams, identify an environmental problem for which they want to find/develop a solution and, at the end of the quarter as their final project, create videos to present their solution concepts to the class and a panel of expert judges. Student teams interested in developing their concept to compete in the 2016 Alaska Airlines UW Environmental Innovation Challenge will get frequent updates through class announcements on sessions tied to the Challenge. More information on the Challenge is available at: http://www.foster.washington.edu/centers/entrepreneurship/eic/Pages/eic.aspx.

Learning objectives:
• Gain awareness of our most pressing environmental challenges and how businesses large and small are beginning to tackle them.
• Learn from subject matter experts about solutions emerging in various industries.
• Evaluate business opportunities in cleantech as outlined by guest speakers, required readings and world news
• Gain hands-in experience in developing business solution concepts addressing environmental challenges.

NO REQUIRED TEXTBOOKS: All readings are articles you can find online by following the links in the course syllabus or PDFs available on the course website. All readings will also be linked from the Class Plan on the course Canvas page.

GRADING:
This is a credit/no-credit course. Students must score a minimum of 70% of the total available points to receive credit for the course. Note that fully 15% of your points come from your peer’s evaluation how your contribution to the team project. …. Individual assignments contribute 60% of the points to the course grade while the remainder comes from the team project. All written assignments will be submitted and graded electronically through the class website on Canvas. Assignments are due at the start of class at 4:00 p.m. Late assignments will be accepted within 24 hours of the deadline but are subject to an automatic 5% point penalty. Assignments submitted more than 24 hours after deadline will not be accepted.
**Team videos must be submitted on deadline – late videos will receive a grade of 0.**

All assignments can be found, must be submitted and will be scored through Canvas.

<table>
<thead>
<tr>
<th>Graded Assignments</th>
<th>Points:</th>
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<tbody>
<tr>
<td>Attendance as recorded through daily “quizzes” for which answers will be supplied at the start of class</td>
<td>300</td>
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<tr>
<td>Contributions to Project Ideas Discussion Board (available at start of quarter on Canvas; due Oct. 30th)</td>
<td>100</td>
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<tr>
<td>Judges’ scoring of team video pitch (videos due on Canvas by midnight <strong>Wed., Nov. 27</strong>th)</td>
<td>350</td>
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<tr>
<td>Confidential team peer evaluations due on Canvas Dec. 7th</td>
<td>150</td>
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<tr>
<td>Individual Perspective Paper due on Canvas Dec. 11th</td>
<td>100</td>
</tr>
<tr>
<td>Total Course Points:</td>
<td>1,000</td>
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**How the Team Projects Work**
The team projects are a significant part of the EIP contributing 35% of each student’s total course points. Project ideas come from the students in the class. A portion of each class on Oct. 9-30th, when teams are formed, will be “open microphone” time for students with project ideas to briefly outline their concept to the class. To ensure that all team members contribute to the project, confidential team peer evaluations round out the set of project assignments, contributing 15% of total available points. Protect your own score and do your part to make the team successful.

**Team Composition**
We’ll form teams in class on Oct. 30th around ideas pitch by students at the beginning of class and developed through the Discussion Board. A key objective of the EIP is to recognize that environmental innovation requires the thinking and work of cross-discipline teams, which is why the course is open to students from multiple programs across UW. Therefore, **each team must have a minimum of ONE undergraduate student, ONE MBA student and ONE student from outside the Foster Business School** pending final class makeup. Barring exceptions approved by the instructor, **teams should have no more than six members**.

**Final presentation submissions:**
Student teams are responsible for shooting and editing their own team presentation videos. Use a DSLR, point and shoot, webcam, or cell phone (do not Vertical Video!). If you need a camera or equipment visit CT&E’s student equipment rental site.
http://www.cte.uw.edu/STFEquipment. Be sure to record in a quiet space. Team rooms would work well. If available use a tripod to frame your shot with the presentation screen and the presenter framed together.

Please name your video file EIP18_XXXXXXX replace the XXXXXXXX with your group or one team member’s surname. Upload through the My Foster Media link (also found in the Canvas Syllabus, in Assignments, in Modules and in the left hand navigation column) by 11:59 p.m. on the Wed., Nov. 28th.

Attendance

We have but 10 brief class periods together and a lot of ground to cover. We also are privileged to have an impressive collection of guest speakers generously giving of their time to join us. Therefore, I expect all students to show upmost courtesy to our guest speakers by:

- Doing your very best to be on time for class,
- Slipping -- as inconspicuously as possible -- in or out of class when you have no choice but to be late or leave early, and
- Minimizing coming in and out of the classroom during speaker sessions barring extremely urgent necessity.
- Getting the daily code for the attendance quiz is your responsibility. I'll post it on the board at the beginning of class, but as the projection screens will cover it as soon as class begins, you’ll need to see me after class to get access to the quiz. **Attendance contributes 30% to your total class points.**

Some classes in the second half of the quarter will include time for structured team work, often with the possibility of consulting with our guest speakers or EIC coaches.
Environmental Innovation Practicum Course Plan – Autumn 2018

NOTE: Speakers, topics and associated required readings/viewings are subject to change.

Class #1 Tues., Oct. 2: What’s it all about?

Readings assigned: None

Class Period Schedule:

- Course Introduction and Overview from Instructor
- Student introductions -- Yep! Everybody speaks
- EIC Finalists Panel and Q&A

Citizen deadline: Oct. 8th — online and mail-in deadline to register to vote in Washington State https://weiapplets.sos.wa.gov/MyVoteOLVR/MyVoteOLVR

Class #2 Tues., Oct. 9: Innovating Energy

Readings assigned:

Class Period Schedule:

- Project pitches -- open mic
- Panelists:

  - Grid integration: Daniel S. Kirschen, Donald W. and Ruth Mary Close Professor of Electrical Engineering
  - Developments in solar: Christine Luscombe, FRSC, Director of the Molecular Engineering PhD program, Robert J. Campbell Professor of Materials Science and Engineering and Molecular Engineering and Sciences, Adjunct Professor of Department of Chemistry, Associate Editor, Journal of Materials Chemistry A, Vice-President, IUPAC Polymer Division
Advanced Manufacturing: J. Devin MacKenzie, Washington Research Foundation Professor of Clean Energy and an Associate Professor of Materials Science and Engineering and Mechanical Engineering

Class #3 Tues., Oct. 16: The Carbon Impact of Buildings

Readings assigned:


Class Period Schedule:

Guest lecturer: Professor Kate Simonen, AIA, SE, College of Built Environment

Class #4 Tues., Oct. 23: Food and Consumption

Class Period Schedule:

- Project pitches — open mic
- Panelists:
  - Production: Elizabeth Wheat, PhD, lecturer, Program on the Environment, Co-owners, Skyroot Farm
  - Waste: Karen May, Project Manager, Food: Too Good To Waste, King County, Climate Change and Organics Recycling
  - Food packaging: Brent Kawamura, Senior Sustainability Specialist | PCC Community Markets

Citizen deadline: Oct. 29th — deadline to register in person to vote in Washington State https://weiapplets.sos.wa.gov/MyVoteOLVR/MyVoteOLVR

Class #5 Tues., Oct. 30: Team Formation Around Innovation Concepts
Check out Steve Blank’s myriad resources for startups: [https://steveblank.com/tools-and-blogs-for-entrepreneurs/](https://steveblank.com/tools-and-blogs-for-entrepreneurs/)

*And read: Why the Lean Startup Changes Everything, HBR*

Assignment deadline:

*Class Period Schedule:*
  - 4:00-5:00 p.m.
    - *Project Concept Idea Pitching*
    - “Speed dating”
    - *Networking for team formation*
  - 5:00-5:30 p.m. — “Applying the Lean StartUp Method to Environmental Innovation” — Instructor lecture
  - 5:30-5:50 p.m. — Team logistics for assignment

*Class #6 Tues., Nov. 6: Changing User Behavior*

*Readings assigned:*
  - How Green Gamification can Change the World, globalwarmingisreal.com

*Class Period Schedule:*
  - 4:00-4:50pm Guest lecturer: Dargan Frierson, Assoc. Prof., Department of Atmospheric Sciences, EarthGames. Read about him in Grist: Could a Video Game Help Us Solve Climate Change?
  - Structured Team Time with Dr. Frierson: customer identification and behavior challenges and volunteer coaches Aaron Goldfeder, CEO and Founder, Energy Savvy; and Gabe Boeckman, Communications Manager, McKinstry, previously with Cleantech Alliance

*Class #7 Tues., Nov. 13: Resources*

*Connections*
Reading assigned:

Class Period Schedule:

• Panelists:
  o Chue Yang, MakerSpace Manager, CoMotion
  o Drew Zimmerman, Res. Ed. Specialist, Area 01 and the MILL
  o Michael Pomfret, Managing Director, Washington Clean Energy Testbeds, Clean Energy Institute
  o Jasbir (Jesse) S. Kindra, Executive Director, CASRIP, Supervising Patent Attorney, ELC, UW School of Law

• Team Consulting with panelists and volunteer coaches including:
  o Rachelle Ames, CleanTech Alliance

Class #8 Tues., Nov. 20: Current Economy to Circular Economy to Regenerative Economy


Class Period Schedule:

  ▪ Guest lecturer: Josh Gary, Co-founder and Chief Commercial Officer, Vartega
    ▪ Structured Team Time: cradle to cradle thinking with speaker and volunteer coaches including Pam Tufts, former Assistant Director, Buerk Center for Entrepreneurship, Environmental Innovation Challenge

Class #9 Tues., Nov. 27: The Entrepreneurial Impact of Pricing Pollution

Class Period Schedule:

  ▪ Panel:
    ▪ KC Golden, Senior Policy Advisor, Seattle, Climate Solutions
    ▪ Michael Lazarus, Director and Senior Scientist, Stockholm Environment Institute

  ▪ Final team time

***TEAM VIDEO FILES DUE ON CANVAS BY 11:59PM, WED., NOV. 28TH***
Class #10 Tues., Dec. 4: Final Presentations with Judging Panel

Readings assigned: None

Class Period Schedule:

"Movie" of all team presentation videos

Comments and Counsel from a **Panel of Environmental Innovation Challenge Judges:**

- **Jimmy Jia,** Founder and CEO of Distributed Energy Management.
- **Linda Anderson-Carnahan,** Associate Director, Office of Environmental Review and Assessment at US Environmental Protection Agency, Region 10.
- **Eric Berman,** Co-chair, E8 angel investors, volunteer pilot for Angel Flight West, manager of MyFlightbook.com, a service for pilots to track their hours.

**Note:** The Buerk Center for Entrepreneurship will be hosting an information reception with our panelists following class, expanding your Q&A access to our guests

**Confidential Peer Evaluation ASSIGNMENT DUE ON FRI., DEC. 7TH**

**Individual Perspective Paper ASSIGNMENT DUE ON TUES., DEC. 11TH**