

RE518 Best Practices in Sustainable Real Estate**Winter 2018****Lectures: TTh 3pm-4.20pm****Instructor:****Dr. Sofia Dermisi**

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Office hours: TTh 1.30-2pm or 4.30-5.30pm (students are required to schedule an appointment by email during or beyond office hours because office hours might not be held on a regular basis)**Class Meetings, Office Hours, Attendance Requirements and Communication**

The class meets on Tuesdays and Thursday 3-4.20pm and office hours are scheduled before or after class by appointment. The course does not have an attendance requirement except for the following occasions: guest speaker presentations, site visit, midterm and student presentations.

The preferred communication method is email for scheduling appointments or asking urgent questions. The instructor will make every effort to respond to emails within 24-hours. Any changes to the syllabus or other urgent messages will be posted as an announcement on canvas. Students are requested to check canvas for any changes before each class. To receive announcement notifications from canvas please access your notifications and select announcement (ASAP).

Overview

The course explores sustainability at a micro and macro level highlighting best practices embraced by buildings as well as cities worldwide. Discussing the application of the triple bottom line allows students to assess their surroundings and understand the importance of improving a building's and areas' livability standards and the connection to real estate. At a macro level, the course analyzes the importance of sustainability in urban areas while introducing best practices for a variety of environmentally friendly and financially feasible interventions in the US and abroad. Beyond the adoption of specific sustainable urban practices, the course offers insights on global assessments of urban environments in their entirety in the form of worldwide city sustainability indices (e.g. Green City Index – Siemens) and international city sustainability competitions (e.g. European Commission's European Green Capital etc.). At a micro level the course focuses on the adoption of environmentally friendly improvements at a building level with long-lasting economic benefits which may or may not be part of a building's sustainability certification/designation (e.g. Energy Star, LEED, BREEAM, Green Globes etc.).

All lecture materials will be posted on the course canvas website (<https://canvas.uw.edu/courses/>) immediately after each lecture. Additionally, the canvas course site will include all assignments and additional sources.

Learning Objectives

By the end of the course the students should have accomplished the following goals:

A. Overall:

- Effective communication
- Demonstrate an ability to apply knowledge in new and unfamiliar circumstances through a conceptual understanding of relevant disciplines and requirements for sustainability

B. Specific to the course:

- Understand what sustainable practices can be adopted at a building level with lasting effects for the building occupants, surrounding area and the city
- Understand the importance of the adoption of sustainable practices in the built environment and urban context
- Identify best worldwide practices which can be applied even at a student's immediate environment

Texts & Equipment:

- **Required Textbook:** Charles J. Kibert, Sustainable Construction: Green Building Design and Delivery, 2016, 4th Edition, John Wiley, ISBN: 978-1-119-05517-4

- **Recommended books:**

- R. H. Crawford, Life Cycle Assessment in the Built Environment, Taylor & Francis, 2011, ISBN 9780415557955
- S. Coyle, Sustainable and resilient Communities, John Wiley, 2011, ISBN 978-0-470-53647-6
- E. Charlesworth and R. Adams, The EcoEdge, Routledge, 2011, ISBN 978-0-415-57247-7
- M. Montoya, Green Building Fundamentals. Pearson, 2010, ISBN 978-0-13-502839-1

Expectations & Grading

The syllabus outlines the book chapters the students need to review each week in addition to the power points posted on canvas. The final grades are curved based on the performance of all students in the class. Determining factors of the final grade include two assignments, a midterm and a final paper (Table 1). The two assignments are team based with the maximum of 3 members per team (research expectations will be higher for teams with more students). Assignment 1 focuses on research on LEED certified buildings through the USGBC website and student initiative to explore in more depth a certified building. Assignment 2 focuses on building Energy consumption.

Table 1. Percentage determinants of final course grade

	<i>Given out</i>	<i>Due</i>	<i>Percentage</i>
Class participation through discussions			5%
Assignment 1 – LEED	1/16	2/6	15%
Assignment 2 – Energy efficiency	2/6	3/1	15%
Midterm		2/13	40%
Final paper presentations		3/6 or 3/8	5%
Final paper		3/13	20%
Total			100%

Students are free to choose their final paper topic, however it is required to focus on sustainability of a building or a community and receives the instructor's approval. Students are required to notify the instructor by email until **February 9th** on the following: a) the topic – even if it is preliminary and b) if they will be working alone or as part of a team. Students are allowed to work in teams on their final paper with up to three members but expectations will be higher than individual papers. Students will be responsible for their data gathering and if they are working as part of a team they will need to notify the instructor in writing on the sections of the final paper they worked on and provide them with their final paper submission. The instructor reserves the right to grade the team members differently based on their individual performance on the final paper. An in-classroom lottery will take place on **February 13th** to determine the presentation lineup for the two last classes.

The final paper (Table 2) is limited to 8 pages (1.5 spacing), without illustrations, and should include a one-page executive summary.

Table 2. Outline of final paper

	points
1. Location description - building or community location (including maps)	10%
2. Challenges faced by the building or community; reasons it became sustainable	15%
3. Sustainability features/designation details (energy star, LEED, Green Globes etc.). In depth research required beyond Energy Star and/or USGBC website, interviews etc.	25%
4. Performance of sustainable building or community	20%
5. Personal views on building or community sustainability adoption	10%
6. Conclusion of study	10%
7. Overall quality of paper	10%
8. Complexity of project (bonus points)	5%
Total	105%

Late Assignments/Final paper

Unless there are extraordinary circumstances, students are expected to turn in their assignments on canvas the day they are due at the beginning of the class or hand them in to the instructor. For every day assignments are delayed a 10% reduction on the assignment grade will be applied. No late submissions will be accepted for assignment 1. Students should notify the instructor as early as possible if a legitimate scheduling conflict exists or if a medical condition will prevent them from meeting a deadline. Any assignment extensions must be approved in advance. If a verifiable emergency occurs and the student is not able to submit his/her final paper at the specified date he/she is required to notify the instructor immediately and will be given an extension to submit it electronically **until March 16th**, otherwise the final paper will not be included in their final grade.

In-Class Behavior

If you arrive late or must leave early, do so as quietly as possible. Cell phones should be set to silent mode prior to the beginning of class. Laptops are allowed during class – but should only be used for note taking or other class-related activities.

Academic Integrity

Students are expected to adhere to the UW's code of conduct. The student conduct code requires students to practice "high standards of academic and professional honesty and integrity." Students who are suspected of cheating or plagiarism will be confronted directly by the instructor, who will inform the appropriate parties within the Department, College, and University in order to determine if the student's actions warrant disciplinary action, which may include probation or dismissal. If you have any doubt about whether a specific use of material constitutes plagiarism or whether it is appropriate to work with others on a project or assignment, ask! The University's Student Conduct Code is Washington Administrative Code 478-120 (<http://app.leg.wa.gov/WAC/default.aspx?cite=478-120>). Also see: <https://depts.washington.edu/grading/pdf/AcademicResponsibility.pdf>

Student Safety

Students are advised to refer to UW policies and procedures to ensure their safety and security on campus. For more information, go to: <http://www.washington.edu/safecampus/> To report threats, seek advice, or get counseling, dial 206-685-SAFE (7233).

Disability Accommodation

The program is committed to ensuring learning opportunities for students with disabilities. If you would like to request academic accommodations due to a disability, please contact the office of Disability Resources for Students (<http://depts.washington.edu/uwdrs/>). If you have a letter from the office of Disability Resources for Students indicating you have a disability that requires academic accommodations, please present it to the instructor so we can discuss specific accommodations for this class.

Course Outline – Topic Overview

Lecture 1 (1/4) Course Overview – Introduction to Built Environment & cities

Readings: power point slides & Chapter 1 & 15

- Course structure
- Built environment life cycle
- Economics of green buildings

Lecture 2 (1/9) Sustainability, ethics & key elements of cities

Readings: power point slides & Chapter 2 & 3 (Table 3.1)

- Defining sustainability
- Ethical challenges
- Key elements of cities

Lecture 3 (1/11) Overview of sustainable building certifications - LEED part I

Readings: power point slides & Chapter 4 & 5

Laptop/ipad requirement: students are required to bring their own devices

- Overview of sustainable building certifications
- LEED ratings & certifications

Lecture 4 (1/16) Sustainable building certifications - LEED part II

Readings: power point slides & Chapter 4 & 5

Guest speaker: Jennifer Frey, Sustainability Program Manager - Sellen Construction

Assignment 1 – given out

- LEED impact on real estate markets
- LEED examples

Lecture 5 (1/18) Sustainable building certifications - Green Globes

Readings: power point slides & Chapter 4 & 6

Guest speaker: Holly Gardner, The Schuster Group

- Ratings and assessment categories
- Green Globe examples

Lecture 6 (1/23) Sustainable building certifications - BREEAM & Living Building Challenge

Readings: power point slides & Chapter 4

Guest speaker: Chris Hellstern, The Miller Hull Partnership

- Overview of BREEAM
- Differences between BREEAM and LEED
- Differences between Green Globes and LEED

Lecture 7 (1/25) Urban sustainable Energy Use & Building Energy Star Rating

Readings: power point slides & Chapter 9

Guest speaker: Norm Menter, Assistant Director, Facilities Services - University of Washington

- Worldwide Energy statistics
- US energy trends and sustainability
- Low-energy strategies & Energy Star designation

Lecture 8 (1/30) Urban transportation systems & sustainability

Readings: power point slides

Laptop/ipad requirement: students are required to bring their own devices

- Modes of transportation & sustainable practices
- Classification of transit systems
- Transportation and GHG Emissions

Lecture 9 (2/1) Urban sustainable water management & Building water management

Readings: power point slides & Chapter 10

Laptop/ipad requirement: students are required to bring their own devices

- Worldwide water statistics/facts
- US water statistics/facts
- Sustainable water practices for urban areas and buildings

Lecture 10 (2/6) Urban sustainable waste management & building waste management

Readings: power point slides & Chapter 14

Assignment 1 – due

Assignment 2 – given out

- Construction site pollution and demolition waste management
- US, EU waste trends and waste generation of major Asian cities
- Sustainable waste management for cities & buildings

Lecture 11 (2/8) Life Cycle Assessment, carbon footprint materials/resources and embodied energy

Readings: power point slides & Chapter 11

Guest speaker: Kate Simonen, Associate Professor - University of Washington

- Links of LCA and materials
- Materials and Embodied energy links

Lecture 12 (2/13) Midterm**Lecture 13 (2/15) Air quality & Building Indoor air quality management**

Readings: power point slides & Chapter 12, 13 and 14 (only regarding IAQ)

Guest speaker: Denise Bender, Assistant Director, Occupational Safety & Health - University of Washington

- Carbon cycle, origin, type and sources of air pollutants
- International protocols
- Worldwide and US statistics
- Indoor air quality assessment

Lecture 14 (2/20) Building design process and regulatory issues

Readings: power point slides & Chapter 7

Guest speaker: Nicole DeNamur, Associate - Pacifica Law Group

- Conventional vs. Green Building delivery systems
- Regulatory restrictions, ASHRAE Standards, IECC, Federal Executive Orders, WA code

Lecture 15(2/22) Urban sustainable sites and landscape

Readings: power point slides & Chapter 8

- Principals of urban landscaping
- Urban parks and sustainability
- Low impact development

Lecture 16(2/27) International award winning sustainable cities & sustainability rankings

Readings: power point slides

- Sustainable cities initiatives
- European Green Capital awards
- Worldwide sustainable cities – Siemens
- Cutting edge buildings (e.g. net zero energy buildings etc.)

Lecture 17(3/1) Site visit to a sustainable building - Merrill Hall

Assignment 2 – due

Lecture 18(3/6) Student presentations

Lecture 19(3/8) Student presentations

3/13: Papers need to be uploaded on canvas by 3pm