

IDS 251 Principles of Green Buildings (3 CH)	Spring 2020
Lecture Tuesday/Thursday 10:00 – 11:50 am	Donovan 1106

IDS 251 Principles of Green Buildings

Instructors–

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Course Description: This course integrates multiple perspectives on the principles behind green building design and development of the green building industry. Methods and analytical frameworks from science and engineering disciplines, as well as social and humanistic perspectives, will inform a deep understanding of the design of green buildings and the intents behind a variety of high-performance building standards. Students will reflect on the design and certification of a real green building project to Zero Carbon standards and earn a personal accreditation as a LEED Green Associate.

Student outcomes:

1. Develop an understanding of the environmental, economic, social, and technical issues surrounding green building design, construction, and rating systems.
2. Understand the tenets of sustainable buildings; including site conservation, water, energy, transportation, materials, indoor air quality, occupant wellbeing, and waste reduction.
3. Develop a logical approach to problem solving by evaluating sustainable building design options from multiple perspectives.
4. Integrate notions and guiding principles from science and engineering disciplines to systematically form a more complete, coherent framework of analysis that offers a richer understanding of green building design.
5. Develop the ability to work collaboratively in a multi-disciplinary group, and communicate internally and externally as demonstrated in the project assignments.
6. Attain a personal credential in Leadership in Energy and Environmental Design Green Associate (LEED GA).

Textbooks

1. McDonough, W. & M. Braungart. 2003. The Hannover Principles: Design for Sustainability, 10th Anniversary Edition. William McDonough & Partners. ISBN: 978-1559636353.
2. Montoya, Michael. 2011. Green building fundamentals: practical guide to understanding and applying fundamental sustainable construction practices and the LEED system. 2nd ed. Prentice Hall. ISBN: 978-0135111086.
3. U.S. Green Building Council. (n.d.) LEED Core Concepts Guide. 3rd Edition. ISBN: 978-1-932444-32-2 (provided).
4. U.S. Green Building Council. 2015. LEED Green Associate Exam Preparation Guide, LEED v4 Edition. ISBN: 978-0-8269-1294-7 (provided).
5. Additional scholarly readings (provided).

Grading – The course grading will be a combination of grades earned on individual work and group project work.

The final grade will be based on these percentages

Quizzes (10)	45%
Integrative Design Process Essay	15%
Collaborative assessment	15%
Score on LEED GA exam	25%

Course contents:

Date	Lecture	Readings and Assignments
Week 1	Introductions, Team Building	Montoya 1-4
Week 2	The societal need for green buildings History and purposes of green buildings	Montoya 5-10
Week 3	Sustainable Design Practices Comparison and contrasting of green building rating systems - LEED, WELL, Green Globes, Energy Star, Net Zero, Living Building Challenge ILFI credit group assignments	Montoya 11-22 McDonough LEED Reference Guide

Week 4	LEED BD+C credit categories and scoring pathways	Montoya 105-112 LEED Reference Guide
Week 5	Integrative project planning and design process Synergies: design strategies for building features that achieve multiple credits IFLI credit work	McDonough LEED Reference Guide
Week 6	principles of land protection ILFI credit work	Montoya 31-41 LEED Reference Guide
	Integrative Design Process Essay	
Week 7	principles of rainwater management ILFI credit work	Montoya 43-52 LEED Reference Guide
Week 8	principles of water use reduction ILFI credit work	Montoya 53-60 LEED Reference Guide
Week 9	principles of energy conservation ILFI credit work	Montoya 61-67 LEED Reference Guide
Week 10	principles of reduced carbon footprint ILFI credit work	Montoya 68-93 LEED Reference Guide
Week 11	principles of materials science ILFI credit work	Montoya 94-96 LEED Reference Guide

Week 12	principles of waste management ILFI credit work	Montoya 97-98 LEED Reference Guide
Week 13	principles of occupant health and wellbeing ILFI credit work	Montoya 99-104 LEED Reference Guide
Week 14	Student Project Presentations LEED Green Associate practice exam	Montoya 113-125 LEED Reference Guide
Week 15	LEED Green Associate exam	Montoya 133-144 LEED Reference Guide