IDS 290 Special Topic: Principles of Green Buildings
3 Credit Hours

Lecture – Spring 2019, MW 14:00-15:15 Room TBD

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 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 LEED 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.

Textbooks


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

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Weekly quiz</td>
<td>25%</td>
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<tr>
<td>Class Project/Participation – Instructor eval</td>
<td>25%</td>
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<td>Class Project/Participation – Team members</td>
<td>25%</td>
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<tr>
<td>Score on LEED GA exam</td>
<td>25%</td>
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Course contents:

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Introductions, Team Building</th>
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| Week 2          | The societal need for green buildings  
                  | History and purposes of green buildings |
| Week 3          | Comparison and contrasting of green building rating systems - LEED, WELL, Green Globes, Energy Star, Net Zero, Living Building Challenge  
                  | LEED credit work |
| Week 4          | LEED BD&C credit categories and scoring pathways |
| Week 5          | Integrative project planning and design process  
                  | Synergies: design strategies for building features that achieve multiple credits  
                  | LEED credit work |
| Week 6          | principles of land protection  
                  | science perspectives  
                  | engineering perspective  
                  | LEED credit work |
| Week 7          | principles of energy conservation  
                  | science perspectives  
                  | engineering perspective  
                  | LEED credit work |
| Week 8 | principles of reduced carbon footprint  
|       | science perspectives  
|       | engineering perspective  
|       | LEED credit work  |
| Week 9 | principles of rainwater management  
|       | science perspectives  
|       | engineering perspective  
|       | LEED credit work  |
| Week 10 | principles of water use reduction  
|        | science perspectives  
|        | engineering perspective  
|        | LEED credit work  |
| Week 11 | principles of materials science  
|        | science perspectives  
|        | engineering perspective  
|        | LEED credit work  |
| Week 12 | principles of waste management  
|        | science perspectives  
|        | engineering perspective  
|        | LEED credit work  |
| Week 13 | principles of occupant health and wellbeing  
|        | science perspectives  
|        | engineering perspective  
|        | LEED credit work  |
| Week 14 | Student Project Presentations  
|        | LEED Green Associate exam preparation  |
| Week 15 | Student Project Presentations  |
| LEED Green Associate exam preparation |