

Green Building Strategies LEED Lab

Spring 2017

DCP 4930, section 187H/ 6301, section 21G0

Tuesdays & Thursdays, Periods 6-8 (12:50 - 3:50 PM)
ARCH, Room 411

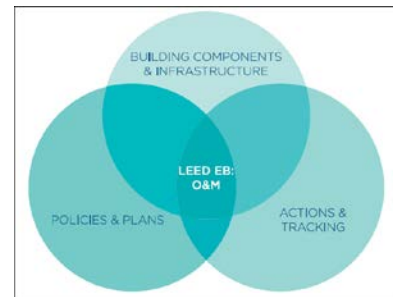
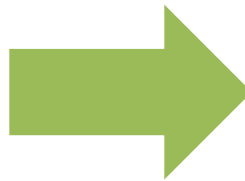
Bahar Armaghani, LEED™ Fellow, LEED™ Faculty
ARCH 446 (east end of Architecture Building)

barmagh@ufl.edu, 352-294-1428

Office Hours: T 11:00-12:30 pm, or by appointment

Transforming Existing Buildings into High Performance Sustainable Buildings

While the environmental performance of new commercial buildings in the United States has been improving dramatically in recent years, most existing buildings were constructed when energy was less expensive, technologies were less advanced, and environmental performance rarely a priority. Older, existing buildings generally use significantly more energy and water than new buildings of the same size and function. According to the Institute for Building Efficiency, existing buildings that are 20 years and older make up more than 70 percent of the built environment by square footage. Thus, existing buildings offer tremendous opportunities to conserve energy and water as well as provide healthier, more productive work environments. *EPA*



Green buildings help create healthy environment while saving energy, resources, and money.

LEED™ V4 for Existing Buildings: O+M contains performance standards for the sustainable operation of existing buildings that are not undergoing major renovations. It covers building systems, infrastructure, practices, and policies.

Course Description

This is a multidisciplinary course that utilizes the built environment's performance, operations and maintenance to educate and prepare students to become green buildings leaders and sustainability-focused citizens. This course will equip students with the skills, knowledge and expertise needed to be effective communicators, project managers, critical thinkers, problem solvers, engaged leaders, and team players in the field of sustainability.

Campus buildings will be used as laboratory for hands-on learning. Reports and findings will be shared with the campus stakeholder and building occupants, educate building occupants and operation and maintenance staff, and establish guidelines for building measurement and verification, operation, and maintenance, and pursue LEED™ V4 for Existing Buildings Operations and Maintenance certification.

Successful course completion can prepare the student for LEED™ V4 Green Associate and O+M specialty exams credentials.

Course prerequisite

Minimum junior standing

This course is designed to produce the following outcomes:

- Students' ability to assess the performance of existing buildings and facilitate the LEED™ V4 for Existing Buildings: Operations and Maintenance (EB: O+M) process with the goal of certifying the facility.
- Equip students with the skills, knowledge needed to be effective communicators, project managers, critical thinkers, problem solvers, engaged leaders, and team players to meet the needs of today's industry's needs.
- Learn skills and tools needed for energy, water, and lighting audits, and develop policies for best practices in Operations and maintenance of facilities.
- Assess and develop polices and techniques to improve building exterior, site, water and energy consumptions, remodeling, waste management, and purchasing.
- Learn LEED™ V4 project administration, registration, submission, and LEED™ V4 online utilization.
- Recognize how improving building operation and maintenance lead to higher performing buildings.
- At the end of the semester the students can be prepared for LEED™ V4 Green Associate (GA) and LEED™ V4 EB: O+M professional credential exams.

Course Format

Approach: The course will be approached as a project while working on an actual UF building, this semester Lacrosse Locker Room Facility is selected for LEED™ V4 Lab and LEED™ V4 EB; O+M certification.

Delivery Method: Lectures, discussions, field trips on campus, hands on experience, guest speakers, work in teams, team presentations, quizzes, and end of semester personal statement.

Course Website: <http://elearning.ufl.edu/>: This course's e-learning in Canvas site will contain all course materials, including readings, lecture slides, assignment instructions, quizzes, announcements, and grades. All course material will be posted before class starts.

Communication: Outside of class, barmagh@ufl.edu email is the best and preferred method of communication.

This is a team oriented course working on a real life project. Being a team player will contribute to your team's and class's success, which will lead to achieving project/building LEED™ V4 certification.

Project Manager's role and responsibility

- Graduate students will play project manager's role in the class to accomplish tasks related to the green strategies implementation on campus building throughout the semester.
- The project manager/graduate student is responsible for managing the team(s) during site visits, make a list of info/data needed before the visit and communicate it with team members. During the site visits make sure the team(s) collected the data needed.
- Communicate with his/her assigned team(s) weekly on the progress of each team member's work before the class.
- Assist team members if needed in finding information, calculations, and support.
- Keep the team on track for data gathering and reporting.
- Review the final report with the team(s) before submission.
- Responsible for all the credits submission, back up review and completion according to the credit requirements.

- *Each project manager to submit an end of semester two pages (double spaced) statement via e-mail regarding his/her role including strategies he/she took to manage the team(s), lessons learned, and recommendations for improvement.*

Field Trips and Guest Speakers

- Multiple field trips will be scheduled to the campus building that is selected for implantation of green strategies and LEED™ V4 EB; O+M certification. Some maybe outside class time.
- Field trips are required.
- Guest speakers on topics related to greening existing buildings.

Required Reading Materials

LEED™ V4 for Existing Building Operations and Maintenance Reference Guide, short version posted on Canvas along with other resources and readings.

- Power point slides and short selected publications posted on Canvas
- Using www.LEEDuser.com as supplemental resource

- LEED™ V4 EB; O+M Reference Guide web based access for one year for \$50 per student (this is like an electronic book). This is a special offer from USGBC to LEED™ V4 Lab students. Instructions for payment directly to USGBC and access will be provided after drop add week.

Requirement for the class to attend fall semester Green Building Learning Collaborative event. To be announced in March.



Tools and Resources

- **Building Green, www.buildinggreen.com** ; is an excellent resource in the latest in sustainable built environment, cases studies, articles, materials, and more. This is a membership based site, where University is a member of. That means you have full access to all the site content.
 - o To access this site while on campus, you will automatically be logged in the site and can use it.
 - o To access the site while you are off campus, you can remotely access the site using VPN.
 - o To access some campus resources when you are physically off campus, you may need to install UF's VPN. The [UF VPN Service](#) is designed to allow University Faculty, Staff, and Students to securely "tunnel" into campus over other networks, such as their home internet connection, and access services as if they were on campus. Basically, it lets your computer appear as if it were located physically on campus. To install, go to vpn.ufl.edu . To get more information about VPN, you can visit: <https://connect.ufl.edu/it/wiki/Pages/glvpn.aspx>.
- If you have problems accessing the site use the following;
<https://www.buildinggreen.com/ufl>
- **LEEDuser, <http://www.leaduser.com>** ; this is another resource with tools and examples on each LEED™ V4 credit. UF has a membership to this resource, you can access on campus. If you need to access off campus through UF VPN Service, follow above steps.
- If you have problems accessing the site use the following;
<http://www.leaduser.com/ufl>
- **GSA, <https://sftool.gov/>.**

Paperless Activities and Assignments E-learning on Canvas will be the hub for the communication, discussion, announcements, turn in assignments, papers/projects/videos, take quizzes, and presentation material.

- Check e-learning on Canvas for the material and presentations that will be covered weekly.
- Set up and Check your e-mail to receive class announcements from e-learning on Canvas.
- All assignments/papers/presentations/videos must be turned in electronically through e-learning on Canvas.

Class Attendance and Make-Up Policy

- Students attend class prepared for active participation and discussion. A quality learning experience in this course rests heavily on interaction and exchange ideas related to sustainable built environment.
- You are encouraged to take notes electronically, but not using the computer for surfing web for non-class related topics and doing work for other classes. **In this case, student must e-mail the instructor his/her notes at the end of the class. . Also, using cell phones and texting during class is not allowed except for emergency.**
- Reading material; **Students must complete the reading before each class.**
- Attendance is required. Arriving late to class (5-10 minutes after start of the class, or falling asleep in the class) will be considered a ½ absence. Leaving early while the class is in session will be considered an unexcused absence.
- The policy for attendance is as follows:

Unexcused Absences	Grade point deduction
4-5	5%
6-7	10%
8-9	15%
10-11	20%
Each addition 2 absences	Additional 2%
Final presentations	Additional 5%

- **Only excused** absences can be made up. Excused absences include illness, religious holidays, a death in the family, or participation as an athlete in official UF athletic events; to be excused, absences must be properly documented, for example with a doctor's note.
- All presentations, quizzes, credit submission, and assignments must be turned in on time; projects or assignments may be turned in early. If you will not be in class to turn the assignment in, even if it is an excused absence (e.g. studio field trip), you must turn the assignment in early. Any assignment turned in after it is due will be marked late, and your grade will be penalized.
- Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at:
<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Exams

Exams will be on Canvas. Each exam will cover the material that has been covered in class. These are non-cumulative exams.

Final Projects/Presentations: Team Delivery

- **Energy team (HVAC and Control system); develop written procedures for energy audit including return on investment (ROI) and reduction in Carbon with a 3-5 minutes video/skid making a compelling case on the topic.**
- **Indoor Environmental Quality audit team; develop written procedures for air ventilation and IAQ audit including return on investment (ROI) and reduction in Carbon with a 3-5 minutes video/skid making a compelling case on the topic.**
- **Water audit team; develop written procedures for water audit including return on investment (ROI) and reduction in Carbon with a 3-5 minutes video/skid making a compelling case on the topic.**
- **Lighting audit team; develop written procedures for lighting audit including return on investment (ROI) and reduction in Carbon with a 3-5 minutes video/skid making a compelling case on the topic.**

Grading

Assignment	Instruction	points	Due date
Exam 1&2	Individual; 15 points each	30	On Canvas Exam 1; 2/16/2017 Exam 2; 4/6/2017
Assignments,	Individual; complete assignment	20	On Canvas. See schedule
Attendance & participation	Individual; Read assigned reading, attend class, field trips, and participate in discussions	10	5 points attendance 5 points field trips & discussion
Draft final project	Team submission	10	On Canvas. 2/16/2017
Final project; see above specifics	Teams; present the summary of the developed procedures with a 3-5 minutes video making a compelling case on the topic	30	

Grade Scale

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Numeric Grade	93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	0-59
Quality Points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0.0

See the following link to UF's grade policy:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Online course evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>

Accommodating Students with Disabilities

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Student Honor Code and Academic Honesty

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions.

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department, 392-1111 (or 9-1-1 for emergencies). <http://www.police.ufl.edu/>

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu

<https://lss.at.ufl.edu/help.shtml>

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <http://www.crc.ufl.edu/>

Library Support, <http://cms.uflib.ufl.edu/ask> . Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <http://teachingcenter.ufl.edu/>

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.

<http://writing.ufl.edu/writing-studio/>

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>

“Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.”

Need Help? Don't hesitate to ask

PROBLEMS WITH e-learning on Canvas

For issues with technical difficulties for e-learning on Canvas, contact the UF Help Desk at:

Learning-support@ufl.edu

(352) 392-HELP(4357) - select option 2

<https://lss.at.ufl.edu/help.shtml>

Disclaimer

This syllabus represents our current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity, access to the building, and the availability of guest speakers. Such changes, communicated clearly, are not unusual and should be expected.

Weekly Class Schedule

Date	Topics
Module 1: Introduction to Green Building, Benefits, Goals, and Tools	
<p>Week 1</p> <p>TH, 1/5</p>	<ul style="list-style-type: none"> - Welcome & Introduction - Review syllabus - Review use of Canvas, course files, material, and paperless approach - UF campus sustainability overview and status - Review green building rating systems with focus on LEED™ V4 EB;O+M - Green building/LEED™ V4 goals, benefits, certification and recertification - Why green? <p><u>Teams</u></p> <ul style="list-style-type: none"> - Identify project team managers, members & responsibilities <p><u>Introduction to the following tools:</u></p> <ul style="list-style-type: none"> - www.buildinggreen.com - www.Leeduser.com - Course instrumentation <p>- Video, Watch Ed Mazria and Peter Calthorpe's Presentation from Congress for the New Urbanism (CNU) 23rd meeting, May 21, 2015</p> <p>http://architecture2030.org/watch-ed-mazria-and-peter-calthorpes-presentation-from-cnu-23/</p>
Skills Learning	
Module 2: Project Administration	
<p>Week 2</p> <p>T, 1/10</p>	<p>Project Planning and Assessment</p> <p><u>Reading:</u></p> <ul style="list-style-type: none"> - <i>Getting Started</i> - <i>Minimum Program Requirements</i> - <i>Rating system selection</i> <ul style="list-style-type: none"> - Campus and/or a single building approach - LEED™ V4; O+M scorecard - LEED™ V4 Lab Timing Chart - Credit structure; establishment and performance - Identify pre-requisites and credits - Assign pre-requisites and credits to project team members

TH 1/12	<ul style="list-style-type: none"> - Identify policies needed - Performance period - Performance credits or establishment credits - LEED™ V4 boundary - LEED™ V4 online demonstration and invitation - FTE calculation - Leading sustainability charrette - Integrative Approach <p>Database of State Incentives, www.dsireusa.org</p> <p><u>In class: Breakout session;</u> working on the project implementing the topics presented and discussed on Tuesday.</p>
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Assignment #1: Establish a USGBC account

Module 3: Reading and Understanding Building Drawings and Utility Bills

<p>Week 3</p> <p>T, 1/17</p> <p>TH,1/19</p>	<p>Building Review</p> <ul style="list-style-type: none"> - Learn about Lacrosse Locker Room Facility - Building drawings, site, architecture, and Mechanical, Electrical, Plumbing (MEP) - Utility data analysis - Building green features, Review of prior LEED™ NC certification - Building occupancy schedule and operation - Occupancy, Full time equivalent (FTE), part time & transient - Learn about the stakeholders that you need to know and work with including: building occupants, maintenance & operation, purchasing staff, utilities, energy, grounds, facilities management, and Waste management department. - How to assess LEED™ V4; O+M scorecard for Lacrosse/campus approach - Access and how to manage LEED™ V4 online - Calculate FTE for the project - How to run a project charrette <p>Check for resources; www.leaduser.com</p> <p><u>In class: Breakout session;</u> working on the project implementing the topics presented and discussed on Tuesday.</p> <p>National Charrette Institute; http://www.charretteinstitute.org/resources.html</p> <p>Invite students to join LEED online</p> <p><i>All credits will be discussed and addressed in class, but only the pre-requisites and attempted credits will require backup documentation and upload to LEED™ V4 online</i></p>
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Module 4: Energy Audit and Energy Star Rating

<p>Week 4 T, 1/24 Energy Audit Team</p>	<p>Energy Conservation Strategies and Measures Energy efficiency and conservation strategies overview</p> <p><i>-Introduction to energy and air quality instrumentation for building measurement and verification</i> - ASHRAE Level 1, energy audit process, approach, equipment/tools, data collection, reporting. Prepare for site energy audit - ASHRAE 62.1-2010, Minimum Indoor Air quality Performance, process, calculations, tools, reporting. Prepare for site air performance audit. - Existing building Commissioning (Cx)analysis, implementation, and ongoing, approach, tools, analysis, reporting</p> <p>Check for resources; www.leaduser.com</p>
<p>TH,1/26</p>	<p>Reading; Energy and Atmosphere category to Existing Building Commissioning credit</p> <p>Energy Star target finder https://portfoliomanager.energystar.gov/pm/targetFinder.jsessionid=604A5298165C35755993E38D12CB0816?execution=e1s1</p> <p><i>In class: Breakout session</i></p> <ul style="list-style-type: none"> - Each team to review the policies in the module - Perform Energy Star rating - Review utility data consumption with focus on electric, steam, chill water, gas - Review all the forms needed for ASHRAE Level I audit - Energy Star Portfolio Manager; demonstration - Discuss and decide Campus or building approach
<p>Assignment #2, individual team members, outline for charrette agenda and outcome with preliminary assessment of LEED™ V4 checklist for Lacrosse project.</p>	
<p><i>Guest speaker; Robert Chronic; Energy audit forms and methodology</i></p>	

Module 5: Lighting Audit and Cost Benefits and ROI And (Cont.) Energy Conservation Strategies

<p>Week 5 T, 1/31 Lighting audit team</p>	<p>Lighting audit</p> <ul style="list-style-type: none"> -Energy efficiency best management practices -Optimize energy performance -Advanced energy metering -Demand response -Renewable energy and carbon offsets -Enhanced refrigerant management <ul style="list-style-type: none"> -Existing building commissioning analysis -Existing building commissioning implementation -Ongoing commissioning -Building level energy metering -Fundamental refrigerant management <p>Reading: Energy and Atmosphere category from existing building commissioning credit to the end.</p>
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TH,2/2	<p>Check for resources; www.leaduser.com</p> <p><i>In class: Breakout session</i></p> <ul style="list-style-type: none"> - Prepare for site visit, assign site visit tasks/teams - Each team to review the policies needed for this module - Each team review credits pursuing in this module - Discuss and decide Campus or building approach - Develop policies associated with this module - work on how to calculate ROI
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Guest Speaker, John Lawson: Lighting audit

Assignment #3, Energy star rating for Lacrosse and a bank due

Module 6: Building Visit Measurement and Verification

Week 6 T, 2/7	<ul style="list-style-type: none"> - Meet at the building, The south east gate - Conduct ASHRAE Level 1 audit - Conduct water audit - Conduct lighting audit - Use class instrumentation - Confirm what is on the drawings with what is installed - Use the forms used in class to record data during walk through - Take necessary photos for documentation and report
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Due to access to the building, this site visit may be outside class time.

TH,2/9	<p><i>In class: Breakout session</i></p> <ul style="list-style-type: none"> - Review data collection from site visit - Share the data in class - Each team review credits pursuing in this module - Discuss and decide Campus or building approach - Work on assignment #3: Energy Star rating for Lacrosse Locker Room Facility and another example building will be provided.
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Guest speaker; Robert Chronic; on site Energy audit

Module 7: Water Audit, Conservation and Strategies

Week 7 T, 2/14 Water audit team	<p>Water efficiency</p> <p>Water efficiency and conservation strategies overview</p> <ul style="list-style-type: none"> - Indoor water use reduction - Building level water metering - Outdoor water use reduction - Indoor water use reduction - Cooling tower water use - Water metering <p>-Review water meter data for at least past three years</p> <p>- Review WaterSense at http://www.epa.gov/watersense/our_water/start_saving.html</p>
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Reading; Water Efficiency category

Check for resources; www.leaduser.com
EPA interactive water budget tool; outdoor water

TH,2/16	<p>http://www.epa.gov/watersense/water_budget/application.html</p> <p>water budget data finder; http://www.epa.gov/WaterSense/new_homes/wb_data_finder.html</p> <p>WaterSense® Water Budget Approach; http://www.epa.gov/watersense/docs/home_final_waterbudget508.pdf</p> <p>Calculate your personal water saving; http://www.epa.gov/watersense/our_water/start_saving.html#tabs-3</p> <p><u>In class: Breakout session</u></p> <ul style="list-style-type: none"> - Work on the water saving calculations for the project with baseline and design base for both indoors and outdoors - Each team to review the policies in the module - Each team review credits pursuing in this module - Discuss and decide Campus or building approach
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Final project draft due, including the guideline and credit status

Exam 1 on Canvas

Module 8: Data review

Week 8 T, 2/21	<ul style="list-style-type: none"> - In class review energy, water, and lighting data collection, forms and calculations completion. Each to have a rough draft of the procedure and formula for ROI - Review the development of the guidelines for each team. - Review the format for credit status reporting for each team <p style="background-color: #d3d3d3; padding: 2px;">Reading; Transportation and site categories to Rainwater management</p>
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TH,2/23 Field trip; On campus project Field trip to Shands

Module 9: Site and Transportation Survey and Assessment

Week 9 T, 2/28	<p>Site and Transportation strategies overview</p> <ul style="list-style-type: none"> - Location & Transportation; Alternative transportation - Site management policy - Site development – protect and restore habitat - Rainwater management - Heat island reduction - light pollution reduction - Site management - Site improvement plan - Joint use of facilities <p>Check for resources; www.leeduser.com</p> <p style="background-color: #d3d3d3; padding: 2px;">Reading; Site categories from Rainwater management to the end of site category</p>
TH,3/2	<p><u>In class: Breakout session</u></p> <ul style="list-style-type: none"> - Each team to review the policies in the module - Each team review credits pursuing in this module - Discuss and decide Campus or building approach

Assignment #4: Calculate water saving and be prepared to share with the class. This include indoor and outdoor water calculations.

Guest speaker; Sanjyot Bhusari; Commissioning

Week 10

Spring Break

Module 10: Building Operations, Martial Use

Week11 **Building operations and material consumption overview**

T, 3/14

- Ongoing purchasing and waste policy
- Facility maintenance and renovation policy
- Purchasing-ongoing
- Purchasing-lamps
- Purchasing- facility maintenance and renovation
- Solid waste management-ongoing
- Solid waste management-facility maintenance and renovation

Check for resources; www.leaduser.com

Reading; Material category

TH,3/16

In class: Breakout session

- Each team to review the policies in the module
- Work on how to gather data and calculate material
- Each team review credits pursuing in this module
- Discuss and decide Campus or building approach

Guest Speaker, Katie Karwan; UF Recycling

Module 11: Indoor Environmental Quality, Health and Wellbeing

Week 12

Building indoor environmental quality and health/wellbeing overview

T, 3/21

- Minimum indoor air quality performance
- Environmental tobacco smoke control
- Indoor air quality management program
- Enhanced indoor air quality strategies
- Thermal comfort
- Interior lighting
- Daylight and quality views

IAQ
audit
team

Check for resources; www.leaduser.com

Reading; Indoor Environmental Quality category

Harvard Study Shows Elevated CO2 Levels Directly Affect Human Cognitive function, 10/26/2015
<http://www.hsph.harvard.edu/news/press-releases/green-office-environments-linked-with-higher-cognitive-function-scores/>

TH,3/23

In class: Breakout session

- Each team to review the policies in the module
- Each team review credits pursuing in this module
- Discuss and decide Campus or building approach

- Review ASHRE 62.1 calculation

Assignment #5: ASHRAE 62.1 calculation.

Module 12: Indoor Environmental Quality, Health and Wellbeing

Week 13
T, 3/28
IAQ audit team

- Green cleaning policy
- Green cleaning-custodial effectiveness assessment
- Green cleaning products and materials
- Green cleaning –equipment
- Integrated pest management
- Occupant comfort survey

Check for resources; www.leaduser.com

Reading; Indoor Environmental Quality categories continue

TH,3/30

In class: Breakout session

- Each team to review the policies in the module
- **Review I-BEAM process and forms**
- **Review APA process and forms**
- Each team review credits pursuing in this module
- Discuss and decide Campus or building approach

Module 13: Innovation and Regional Priority, Quality Control of the Documentations and final Review

Week 14
T, 4/4

- Review strategies for innovations and regional credits
- Each team to review the documentations and all backup information for each credit
- Each team to upload information into Canvas on the team's page
- Review all policies and pre-requisites including:
 - Site management policy
 - Indoor water use reduction
 - Building level water metering
 - Energy efficiency best management practices
 - Minimum energy performance and metering

Reading; ID and RP category

TH,4/6

Exam 2 on Canvas

Module 14: LEED™ V4 Green Associated (GA) exam review

Week 15
T, 4/11
&
TH,11/13

- Review LEED™ V4 accreditation exam
- Registration for the exam
- Preparation for the exam
- Review sample exam questions

Final Presentations

Week 16

- Each team to present one combined final PowerPoint presentation on the development of guideline procedures.
- Each team to present one 3-5 minutes video/skid on the topic that the audit procedures developed for.

T, 4/18

- Each team will have 35 minutes including the video time.
- **All credit submittals with its back up and a copy of completed LEED online form to be uploaded to Canvas on your team's page by 4/18/2017.**