DCP3210 | Class 25552 | Section Online, Class 27237 | Section Campus
3 Credits (F2F), Matherly Room 0007
Sustainable Solutions for the Built Environment
| Spring 2026 | Online Synchronous & F2F

Instructor:	Bahar Armaghani | LEED Fellow, WELL Faculty, Fulbright Specialist Instructional Associate Professor | Program in Sustainability and the Built Environment (SBE) College of Design, Construction, and Planning (DCP) | University of Florida
Office Correspondence:	352.294.1428 | Canvas email (preferred) | barmagh@ufl.edu (alternative)
Course Time & Location:	Tuesdays | Period 3-4 | 09:35 – 11:30 | Synchronous Zoom | F2F https://ufl.zoom.us/j/95437857488 Thursdays | Period 3 | 09:35 – 10:25 | Synchronous Zoom | F2F https://ufl.zoom.us/j/95437857488
Course Co/Prerequisite:	BCN 1582 (or) IDS 2154 (or) another course approved in the topic area
Final Exam Schedule:	N/A
Estimated added Costs:	$0 materials & supplies
Virtual Office hours:	Tuesdays | 4:00-5:00 pm | Thursdays | 10:30-12:30 pm | | By appointment
Course Website:	https://ufl.instructure.com/courses/551373 for modules, announcements, assignments, discussions, lecture slides, readings, quizzes, and grades

Course Description

This course explores innovative and practical solutions that promote sustainability within the built environment. Students will develop the knowledge, skills, and values needed to design, evaluate, and implement strategies that advance environmental stewardship, social equity, and economic vitality.

Through an interdisciplinary lens, the course examines critical issues such as climate change mitigation and adaptation, resilient and regenerative design, decarbonization (Scopes 1, 2, and 3), disaster risk reduction, biodiversity, sustainable consumption, and circular resource management.

Students will learn to assess sustainability challenges, analyze systems, and propose integrated design and policy strategies that align with the **triple bottom line**—people, planet, and prosperity. Emphasis is placed on critical thinking, collaborative problem-solving, and the application of global sustainability frameworks to create actionable solutions for a more resilient future.

Sustainable solutions for the built environment - Search Images

Learning Objectives

By the end of this course, students will be able to:

- Explain the principles and frameworks that define sustainability in the built environment, including environmental, social, and economic dimensions.
- Evaluate global and local challenges—such as climate change, resource depletion, and urbanization—affecting the performance and resilience of the built environment.
- Apply sustainability assessment tools and metrics to analyze energy, water, materials, and human health impacts.
- Develop integrated strategies and design solutions that reduce carbon emissions (Scopes 1, 2, and 3) and advance decarbonization goals.
- Formulate policies, design interventions, and management practices that enhance resilience, equity, and long-term sustainability.
- Collaborate effectively across disciplines to create actionable, data-driven solutions for sustainable development.

Student Learning Outcomes (SLO)

Upon successful completion of this course, students will be able to:

- **Analyze** sustainability issues in the built environment through a systems-thinking approach.
- **Assess** the environmental and social impacts of design and policy decisions using established sustainability frameworks.
- **Design** holistic solutions that integrate green building strategies, resilient design, and circular economy principles.

- **Develop** sustainability action plans that align with decarbonization targets and climate adaptation goals.
- **Demonstrate** effective communication, collaboration, and leadership skills in proposing sustainable solutions for real-world challenges.

Required Text/Reading:

- No textbook required
- All readings will be provided via links or pdf
- United Nations, Sustainable Development Goals (UN SDGs).
- Weekly readings assigned under each module on Canvas e- Learning portal.
- Students expected to complete readings as advance preparation for class discussion and exercise.

Other Resources

In addition to the required text(s), various supplemental, free publications identified for class discussion and/or assignments may be supplied via the UF Canvas e-Learning portal (https://lss.at.ufl.edu/), such as the following:

- BuildingGreen, Homepage, ***UF membership access*** | https://www.buildinggreen.com/
  Knowledge Base | https://www.buildinggreen.com/knowledge-base
  Product Guidance | https://www.buildinggreen.com/product-guidance

- Drawdown, Homepage | https://www.drawdown.org/
  Solutions | https://www.drawdown.org/solutions
- Green Building Advisor, Homepage | https://www.greenbuildingadvisor.com/
  Green Basics | https://www.greenbuildingadvisor.com/green-basics

- My Florida Home Energy, Homepage | http://www.myfloridahomeenergy.com/
  Find Help | http://www.myfloridahomeenergy.com/help/

- U.S. Green Building Council, ***UF membership access*** | www.usgbc.org
- LEED User, ***UF membership access*** | www.leeduser.buildinggreen. com

Class Attendance and Make-Up Policy

- **Attendance is required** for all class sessions. Only **excused absences** will be eligible for make-up opportunities.
- **Excuse absences** include:
  - Personal illness
  - Serious family emergencies
  - Special curricular requirements (e.g., judging trips, field trips, professional conferences)
  - Military obligations
  - Severe weather conditions
  - Religious holidays
  - Official university activities (e.g., athletic events, music performances, debates)
  - Court-imposed legal obligations (e.g., jury duty or subpoena)
- **Documentation is required** for all excused absences.

Students are allowed to miss up to the number of class periods equivalent to the number of course credits (e.g., **3 credits = 3 class periods 50 minutes each**) **without penalty and without an excuse**.

Any additional absences beyond this allowance must be properly documented and fall within the list of excused absences above.

This course follows the University of Florida's official attendance policies, which can be found here:
🔗 UF Attendance Policy – Undergraduate Catalog

Assignments and Grading

Assignment details, deliverables, due dates, and grades are published on Canvas and may be subject to change.

Grading Category	*Additional Details*	*Points*
Attendance & Punctuality	Introduction Post, daily attendance and participation	10
Readings (Individual)	Readings (points vary) (0-15) • Weekly & Module-Based	15
Discussion (Individual)	Discussions (points vary) (0-15) • Weekly & Module-Based	15
Presentations (Team)	PowerPoint presentation (points vary) (0-20) • Weekly & Module-Based	20
Final Project (Team)	• Class Presentation • Peer Review	30 10
	Total	**100**

Grade and Grading Policy:

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

Final student grades will follow University of Florida grades and grading policies.

- Undergraduate Students: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

Course Modules

General course module main topics and sub-topics summarized below. **Course modules and weekly content including readings, assignments, discussions, PowerPoints, and final projects** are posted in detail on Canvas and may be subject to change.

Date/Week	*Modules*	*Module Main Topics*	*Module Sub-Topics*
1/12	0	Start Here	• Welcome to the course • Course overview • UF resources and policies
1/19	1	Introduction to Sustainability	• UF Sustainability • Introduction to UN Sustainable Development Goals (SDGs) • Introduction to Drawdown
1/26	2	Sustainable Planning and Development	• Smart Growth • New Urbanism • Decarbonization Framework

2/2	3	Whole systems thinking, Codes, Standards and Green Building	• Biophilic Design • Smart Cities • LEED for Cities • Green Construction Codes • Living Building
2/9	4	Land Use Planning and Sustainable Communities	• Sustainable Communities • New Urbanism • Mass transit • Conservation subdivision
2/16	5	Sustainable Site and Landscape	• Landscape • Stormwater management • Heat island effect roof and non-roof • Sustainable Site Initiative
2/23	6	Water Conservation	• Water inside and outside • Irrigation • WaterSense
3/2	7	Energy Conservation and Efficiency	• Affordable and clean energy • Net zero energy • Building envelope • Mechanical and electrical systems
3/9	8	Renewable Energy	• Solar farms • Renewable Energy systems • Technology • Cost
Spring Break 3/16-3/22			
3/23	9	Indoor Environmental Quality	• Interior material use • Daylight and views • Lighting • Air quality
3/30	10	Material and Recourse Use	• Material embodied carbon • Waste management • Consumption and production • Eco building material
3/30	11	Decarbonization	• Net Zero • Embodied Carbone • Climate Action Plan
4/6	12	Resilient Design	• Resilient Design • Sea Level Rise • Climate Action • Security and sustainability in smart cities
4/13		Final Project Presentation	• One presentation. Each team will present their section

Disclaimer: This syllabus represents my current plans and objectives. Throughout the semester, we may need to adjust with unforeseen events and conditions. Such adjustments are communicated clearly in class and via written announcements on Canvas. These adjustments are not unusual and are expected during a pandemic.

Class Project

The class is divided into **teams**, with each team assigned a specific **module topic** (see list below). Teams will collaborate throughout the semester to reflect on learning, connect concepts across modules, and prepare a final presentation that demonstrates integrated understanding.

Weekly Reflections and Presentations:

- Each team will develop a **weekly reflection PowerPoint** summarizing insights and applications from all modules covered that week.
- A **rotating team manager** (every two weeks) will oversee weekly deliverables, ensure on-time submissions, lead discussions, and finalize the team's presentation.
- Each weekly presentation must integrate **relevant UN Sustainable Development Goals (SDGs)** that align with the topics discussed.
- These weekly reflections will be compiled to form part of each team's **cumulative final presentation**.
- The purpose of these presentations is to encourage continuous learning, synthesis of ideas, and application of sustainability principles to real-world contexts.

Final Project / Teams' Presentation:

- At the end of the semester, each team will deliver a **shortened version of their cumulative presentation**, focusing on the **module topic assigned** to them at the start of the course.
- Each team must clearly **identify and explain the UN SDGs** that align with their module's theme and demonstrate how their strategies contribute to achieving those goals.

Team/Project Manager's responsibilities:

- Lead the discussion in the breakout sessions that covers module topic and its related SDGs
- Ensure the weekly PowerPoint presentation is completed for each module and submitted on time.

Class Teams

- **Sustainable Planning and Development:** This team explores strategies that guide the design and growth of communities through a sustainability lens. The focus is on integrating land use, transportation, infrastructure, and ecosystem preservation to create inclusive, low-impact, and resource-efficient environments.

- **Codes and Standards:** This team examines the role of building codes, rating systems, and regulatory frameworks in advancing sustainability within the built environment. Students will explore how national and international standards—such as ASHRAE, LEED, and WELL—guide design, construction, and operations to ensure safety, efficiency, and environmental responsibility. The team will analyze how policies and compliance pathways can accelerate the adoption of sustainable practices, decarbonization goals, and resilience strategies across sectors.

- **Land Use and Planning:** This team explores how thoughtful land use and urban planning can shape sustainable, inclusive, and climate-resilient communities. Students will evaluate patterns of development, zoning, and transportation systems that influence resource efficiency, mobility, and quality of life. The focus is on integrating ecological preservation, smart growth, and mixed-use strategies that reduce environmental impact while promoting social equity and economic vitality.

- **Sustainable Site:** This team explores strategies that guide the design and growth of communities through a sustainability lens. The focus is on integrating land use, transportation, infrastructure, and ecosystem preservation to create inclusive, low-impact, and resource-efficient environments. Students will assess how planning decisions influence environmental quality, social equity, and economic vitality, and will propose policies and design solutions that promote resilient, walkable, and livable communities aligned with the UN Sustainable Development Goals (SDGs).

- **Water Efficiency /Conservation:** This team investigates sustainable water strategies for buildings and communities. Students will explore water conservation, reuse, and stormwater management practices that support ecosystem health and climate resilience. The team will analyze approaches to water demand reduction, greywater and rainwater harvesting, and policy measures that advance the responsible management of water as a shared resource.

- **Energy Efficiency/Conservation:** This team examines energy systems and their critical role in achieving a decarbonized and resilient built environment. Students will explore energy efficiency, renewable technologies, net-zero energy strategies, and carbon reduction methods for Scopes 1 and 2 emissions. Emphasis is placed on integrating building performance analysis, grid interaction, and passive design to enhance operational efficiency and reduce environmental impact.

- **Renewable Energy:** This team focuses on clean energy generation and integration strategies that drive the transition toward carbon neutrality. Students will examine renewable technologies such as solar, wind, geothermal, and bioenergy, and assess their application within buildings, campuses, and communities. Emphasis is placed on energy modeling, storage systems, and policy mechanisms that support a just and resilient energy transition aligned with global decarbonization goals.

- **Indoor Environmental Quality:** This team explores how indoor environments influence human health, well-being, and productivity. Students will examine strategies to improve air quality, lighting, thermal comfort, acoustics, and biophilic design. The focus is on creating healthy, inclusive, and performance-driven environments that align with WELL Building concepts and promote occupant satisfaction and wellness.

- **Materials and Resources:** This team focuses on the environmental and human health impacts of materials across their life cycle. Students will assess embodied carbon, waste management, and circular economy strategies that promote responsible sourcing and material transparency. The team will explore innovative approaches for extending product life, reducing waste, and advancing a circular supply chain to minimize Scope 3 emissions.

- **Decarbonization:** This team examines pathways to carbon neutrality across Scopes 1, 2, and 3. Students will develop strategies that integrate energy transition, renewable technologies, embodied carbon reduction, and behavioral change to accelerate decarbonization. The team will align their work with climate action plans and the Global Network for Zero framework to propose actionable solutions for achieving a net-zero future.

- **Resilient Design:** This team focuses on the capacity of buildings and communities to adapt to and recover from environmental, social, and economic disruptions. Students will evaluate vulnerability, climate risk, and adaptive strategies to enhance resilience. The emphasis is on designing systems and infrastructure that protect people and assets, while advancing long-term sustainability and community well-being.

Etiquette

- Be Present. This will allow you to get the most out of class time as well as for your classmates to get the most out of their collaborations with you.
- Put your cell phone away unless you are actively using it to further the class activities.
- Be prepared. The readings and videos have been carefully chosen to support the class activities.
- Listen carefully and do not interrupt others.
- Give quality feedback. What constitutes "quality" will be discussed in class.
- Respect the opinions of others, even when you do not agree.
- Keep an open mind; embrace the opportunity to learn something new.
- Avoid monopolizing the discussion. Give others a chance to contribute and be- heard.
- Do not be afraid to revise your ideas as you gather more information.
- Try to look at issues from more than one perspective.
- Respect others by learning and using the name and pronoun they prefer.
- Do not use offensive language.

Getting Help

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/

University Policies

Online course evaluation

Students expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://gatorevals.aa.ufl.edu/students/ . 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. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/ . Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

Students with Disabilities:

Students requesting accommodation for disabilities must first register with the Disability Resource Center (DRC). The DRC coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues.

Upon registering, the DRC will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations. Contact DRC at **352-392-8565**, or viewing, www.dso.ufl.edu/drc/.

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.

Software Use:

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. As such, violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Religious Observances:

Please inform the instructor of any religious holidays or other days of special religious significance that may interfere with your participation in this class so that appropriate accommodations can be made.

Sexual Harassment:

Sexual harassment is reprehensible and will not be tolerated by the University. It subverts our academic mission and threatens the careers, educational experience, and well-being of students, faculty, and staff. The University will not tolerate behavior between, nor among, members of this community that creates an unacceptable working environment.

Other Campus Resources

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/