

**DCP 3210: Sustainable Solutions for the Built Environment**

**Fall 2024 | 3 Credits**

**Instructor: Patricia Kio, PhD, LEED GA, MNIA** | Sustainability & the Built Environment (SBE), Construction and Planning (DCP) | University of Florida.

**Instructor’s Office:** AH 132  
**Instructor’s Contacts:** [p.kio@ufl.edu](mailto:p.kio@ufl.edu)  
**Office Hours:** Tuesdays and Wednesdays (1:00 - 3:00 pm)  
**Alternative:** | or by appointment (virtual & in-person)

**Course Time & Location:** M (9:35 – 11:30 am) | W (9:35 – 10:25 am) | ARC 411

**Co/Prerequisite:** None

**General Education Credit:** None

**Final Exam Schedule:** No final exam for this course. Final project is due on 7th December 2024.

**IT IS IMPORTANT TO READ THIS ENTIRE SYLLABUS ON YOUR FIRST DAY OF CLASS**

**COURSE DESCRIPTION**

This course was developed to acquire the knowledge, skills, attitudes, and values necessary to shape a sustainable future. Education for Sustainable Development and the Built Environment means including key sustainable development issues into teaching and learning; for example, climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption. Education for sustainability is essential to help people to understand and accept the need for significant changes in the way we operate socially and economically, in order to ensure a sustainable future for everyone. In this course, students will learn to think about sustainability issues, make assessment, identify strategies and technologies that addresses triple bottom line of sustainability using knowledge and skills gained in the course



**To provide sustainable solutions for the built environment, we must:**

Use all resources wisely, consider the needs of future generations, evaluate a wide range of risks, protect and enhance the environment, conserve energy and natural resources, improve quality of life, and encourage innovative approaches to the design, construction, and operation & maintenance of facilities and infrastructure.

**LEARNING OBJECTIVES**

This course's objectives are to facilitate student learning and leadership in the establishment and enhancement of a more sustainable planet. The objectives emphasis is on evaluating evidence-based products, systems, material, and services, and think about applying new strategies and technologies that contributes to more sustainable world via at home preparation, in-class discussions, videos, online engagement, and individual and collaborative team assignments, students will:

- Explore and understand sustainability.
- Evaluate and communicate the effectiveness of current sustainability initiatives in the built environment and ability to assess whether they are operating in an effective sustainability framework.
- Create a focus on the execution of strategies to drive long-term sustainability performance.
- Develop your own body of knowledge to improve your own sustainability competency and learn the importance of communicating the built environment's sustainability level.
- Understand how to reflect on the future of sustainability in the built environment, communities, and cities.
- Identify the characteristics of best practice in sustainable building/development/infrastructure initiatives and look beyond current initiatives to resilient buildings and cities.
- Communicate and advocate sustainable design principles, strategies, solutions and/or outcomes

**STUDENT LEARNING OUTCOMES (SLO)**

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

- Distinguish the similarities and differences between sustainability and resilience.
- Understand how sustainable solutions are developed, deployed, monitored, measured, and/or modeled in service to the betterment of people, place, and planet.
- Formulate and deliver higher quality verbal and written arguments.
- Demonstrate an improved ability to think holistically and to learn from other people and professions.
- Interact effectively as a part of a team exploring important issues.

**REQUIRED TEXT/READING**

Hawken, P. (2018). Drawdown: The most comprehensive plan ever proposed to reverse global warming.

<http://www.drawdown.org/> , Cost ~ \$15 on Amazon.

- In addition to the required text, various supplemental, free publications identified for class reading/discussion and/or assignments are supplied via syllabus on Canvas e-Learning portal (<https://ufl.instructure.com/courses/404421>). Students expected to complete readings as advance preparation for class discussion.





## 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](http://www.usgbc.org)
- LEED User, UF membership access | [www.leeduser.buildinggreen.com](http://www.leeduser.buildinggreen.com)

## DCP 3210 COURSE MODULES AND TOPICS

Detailed weekly plan, readings, quizzes, and course content will be available on Canvas throughout the semester and will be announced in class.

Preliminary Semester Schedule (subject to modification)

<i>Week   Dates</i>	<i>Modules</i>	<i>Topics</i>	<i>Assessment</i>
Week 1 8/26- <i>Introduction</i> 8/28 - <i>Project 1</i>	1	<ul style="list-style-type: none"> <li>● Overview of the course</li> <li>● UF resources and policies</li> <li>● UF Sustainability</li> </ul>	
Week 2 9/2 - <i>Holiday</i> 9/4	2	<ul style="list-style-type: none"> <li>● Introduction to Drawdown</li> <li>● <i>Project 1 - Systems Thinking for Construction with Alternative Materials</i></li> </ul>	Quiz 1 (10 points)
Week 3 9/9 9/11	3	<ul style="list-style-type: none"> <li>● Sustainable Development Goals</li> <li>● Green Protocol</li> </ul>	Reflection 1 (40 points) <i>Activity 1: (ArcGIS online)</i>
Week 4 9/16 9/18	4	<ul style="list-style-type: none"> <li>● Systems thinking</li> <li>● Green Building</li> <li>● Living Building</li> </ul>	Quiz 2 (10 points) <i>Activity 2: (Ideation Climate Consultant)</i>
Week 5	5	<ul style="list-style-type: none"> <li>● Sustainable communities</li> </ul>	<i>Activity 3: (Concept,</i>



9/23 9/25		<ul style="list-style-type: none"> <li>Transportation</li> </ul>	<i>sensor networks</i>
Week 6 9/30 10/2 (Field trip)	6	<ul style="list-style-type: none"> <li>Resource efficiency</li> </ul>	Quiz 3 (10 points) <i>Activity 4: (System)</i>
Week 7 10/7	7	<ul style="list-style-type: none"> <li>Smart Cities</li> </ul>	Reflection 2 (40 points) <i>Activity 5: (Impact assessment)</i>
<b>Project 1 Final</b> 10/9	<b>Group Presentations</b>		
Week 8 10/14 10/16	8	<ul style="list-style-type: none"> <li>Enabling Technologies</li> <li><b>Project 2 - Smart Sustainable Hub</b></li> </ul>	Quiz 4 (10 points) <i>Activity 6: (Concept-Integrate course strategies)</i>
Week 9 10/21 10/23	9	<ul style="list-style-type: none"> <li>Capital</li> <li>Energy</li> </ul>	Reflection 3 (40 points) <i>Activity 7: (Existing area in Autodesk Forma)</i>
Week 10  10/28 10/30	10	<ul style="list-style-type: none"> <li>Water</li> <li>Land &amp; Materials</li> </ul>	Quiz 5 (10 points) <i>Activity 8: (Proposed hub in Autodesk Forma)</i>
Week 11  11/4 11/6	11	<ul style="list-style-type: none"> <li>Food</li> <li>Structures, Envelopes &amp; Finishes</li> </ul>	Quiz 6 (10 points) <i>Activity 9: (Analysis in Autodesk Forma)</i>
Week 12 11/11 - Holiday 11/13	12	<ul style="list-style-type: none"> <li>Space &amp; Water Conditioning</li> <li>Lighting, Plug Loads &amp; Occupancy</li> </ul>	Quiz 7 (10 points) <i>Activity 10: (Validate with alternate tools eg. Embodied Carbon in Construction Calculator)</i>
Week 13 11/18 11/20	13	<ul style="list-style-type: none"> <li>Indoor Potable Water &amp; Wastewater</li> <li>Vegetation &amp; Irrigation</li> <li>Sensible Siting &amp; Sense of Place</li> </ul>	Quiz 8 (10 points) <i>Activity 11: Apply site strategies and analyze, climate consultant tool</i>
<b>11/25 - 11/30 (Thanksgiving Break)</b>			
Week 14 12/2 12/4	14	<ul style="list-style-type: none"> <li>Green Infrastructure &amp; Stormwater Management</li> <li>Multi-modal infrastructure</li> <li>Mobility technologies by air, land &amp; water</li> </ul>	Reflection 4 (40 points) <i>Activity 12: Group reviews</i>

**Finals- Project 2 Presentation and Report by 10:00 am to noon on 12/7**

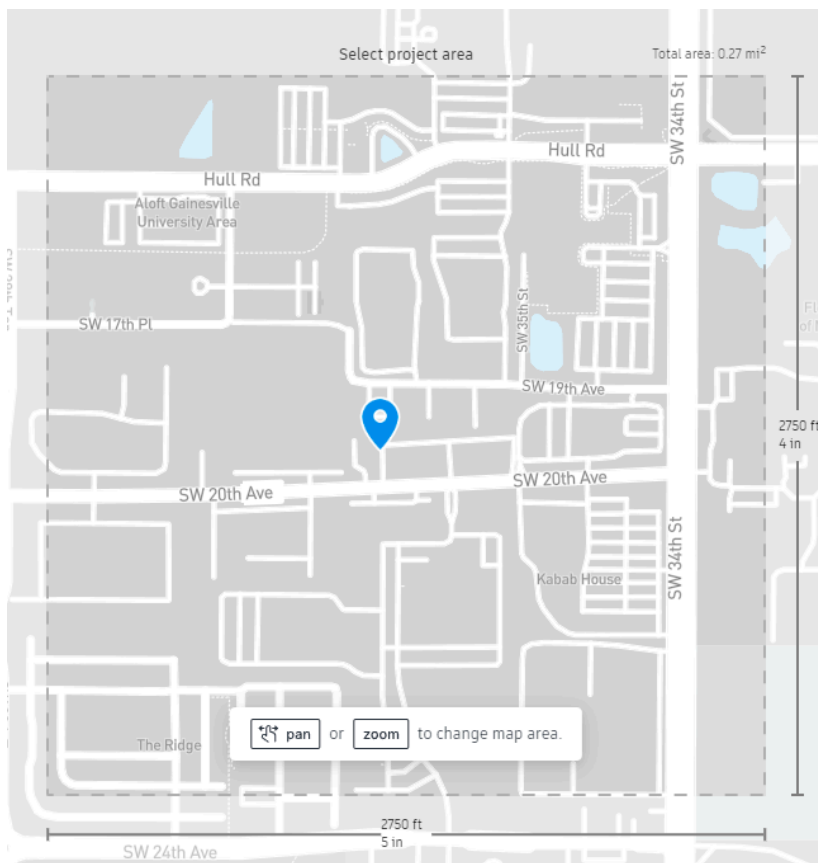
*Disclaimer: This syllabus represents current plans and objectives. Throughout the semester, we may need to adjust with unforeseen events and conditions. Such adjustments would be communicated clearly in class and via written announcements on Canvas.*

## CLASS PROJECTS

**Project 1:** Teams will develop a sustainable system for construction with alternate materials. Teams will compare two scenarios (novel materials vs traditional materials) to show impacts in the environment.

**Project 2:** The class will be working on the area around the property at **3557 NW 19th Avenue, Gainesville** to develop a Sustainability Hub integrating materials from Project 1 and responding to the needs of the community.

The class is divided into teams of four students for the first project and teams of 8 students for the second project. Presentations will be delivered on powerpoint for 7-10 minutes.



## ATTENDANCE POLICY, CLASS EXPECTATIONS AND MAKE-UP POLICY

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. [Click here to read the university attendance policies.](#)

## ASSIGNMENTS AND GRADING

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



<b>Grading Category</b>	<b>Points</b>
Attendance & Punctuality	5
Readings (individual)	15
Discussion (individual)	15
Presentation 1	25
Presentation 2	40
<b>Total</b>	<b>100</b>

## GRADE AND GRADING POLICY

<b>Letter grade</b>	<b>A</b>	<b>A-</b>	<b>B+</b>	<b>B</b>	<b>B-</b>	<b>C+</b>	<b>C</b>	<b>C-</b>	<b>D+</b>	<b>D</b>	<b>D-</b>	<b>E</b>
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](#).

## SEE CANVAS FOR ADDITIONAL COURSE INFORMATION

Additional information about the course is available on Canvas, including; instructional methods, tips for success, personal conduct policies, mobile communications and computing policies, and/or other relevant students.

## GETTING HELP

### Health and Wellness

#### *U Matter, We Care:*

If you or a friend is in distress, please contact [umatter@ufl.edu](mailto: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](mailto:Learning-support@ufl.edu)/



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

## UNIVERSITY POLICIES

### Online course evaluation/feedback

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.a.ufl.edu/students/>. 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.a.ufl.edu/public-results/>

### Students with Disabilities:

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center. [Click here to get started](#) with the Disability Resource Center. It is important for students to share their accommodation letter with their instructor and discuss their access needs, 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.

### 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/](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf/)

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