Course Syllabus

Jump to Today

Circular Cities

Spring 2020

Course: PLANA 4059 (3 points)

Time: Fridays 9-11 am

Room: 114 Avery Hall

Professor Hutson's Office: 305 Buell Hall

Professor Hutson's Office Hours: Wednesdays 10:00-11 a.m.

Online office hours sign-up link: https://www.wejoinin.com/sheets/ihcyj (Links to an external site.)

Phone: 212-853-2213 (Columbia World Projects Office)

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Background

A circular economy aims to go beyond the current take-make-waste extractive industrial model to redefine growth and regenerate natural systems. It entails gradually decoupling economic activity from the consumption of finite resources through a transition to renewable energy sources and designing waste out of the system (Rizos, Tuokko and Behrens, 2017). The principle goal of adopting a circular approach within city-regions is to reduce resource consumption and waste production. It is also to ensure the long-term sustainability of the city region's natural ecosystem and urban infrastructure.

In a circular city, resource flows are cyclical and localized through closed-loop, integrated systems, often resulting in reduced resource consumption, waste and CO2 production (UCL Circular City Hub, 2017). The built fabric is adaptable, flexible and recyclable. Resources are reused, recycled, recovered and shared. There is a shift towards non-resource based economies and renewable energy makes a significant contribution to the energy mix.

Systems integration, flexibility, intelligence, cooperative behavior, localization, recycling and renewable resources are the key concepts under-pinning the circular city concept (UCL Circular City Hub, 2017).

The course will also introduce students to the theories and practices underlying circular cities. Moreover, this course will attempt to not just highlight the

challenges for cities to develop resource flows that are cyclical through closed-loop, integrated systems, but will focus on solutions. This means investigating the latest attempts to transform institutions, policies, practices, and strategies at multiple jurisdictional levels and scales.

Course Objectives:

The goal of this course is to help students:

- Identifying the main circular economy principles and processes through an analysis of business cases, government strategies and stakeholder feedback

- Examining circular economy applications in different sectors and its resulting economic, social and environmental impacts.

- Developing a framework for circular economy design related to a particular urban sector—mobility, built environment, water, energy and food.

- Investigating potential pathways for interlinking circular economy principles across city systems.

Course Requirements:

This course will require students to attend all classes and to participate in discussion, submit **seven** 2-3 page weekly commentaries, take a midterm, co-lead a class discussion and submit a final paper.

Grading:

Grades will be based on the following:

Class Attendance and Participation: 25%

Students will be expected to attend all classes and to participate in the class discussion. Student teams of 2-3 people will also be responsible for presenting

and leading the class discussion one session per semester. Student presentations should be 20 minutes long and do the following:

1) help lead the class discussion;

2) provide in-depth analysis of the weeks readings;

3) pose interesting and challenging questions to the class;

4) make connections to relevant topics discussed in the course; and

5) where applicable, highlight case studies or examples of efforts aimed at promoting a circular economy and supporting the development of circular cities.

Presentations can include PowerPoint, handouts, etc. Professor Hutson will send around a sign-up sheet the second week of class.

Weekly 2-3 Page Commentaries: 25%

Students will be required to submit a 2-3-page weekly commentary on each weeks set of readings. Your commentaries should not summarize the readings, but instead **should provide an analysis of the readings**. What are your thoughts? What theories and practices seem promising or what critiques do you have? Summaries must be submitted **Thursday by Noon** via the course website each week. Students are expected to submit **at least 7 commentaries** during the semester. Commentaries will be graded either low pass, pass, or high pass. Commentaries should be written with 12 font, be double-spaced, and have 1 inch margins.

No Commentaries are due week of January 20; March 2; March 9; April 20; April 27.

Midterm: 25%

Students will take an in-class midterm that will require short answers and essay questions. The midterm will be on Friday, March 6.

Final Paper: 25%

Students are expected to write a final 10-15-page paper for the course on a topic they choose related to circular cities/circular economy. Final papers should analyze an important circular city/circular economy issue, policy, program, institution, or theory. In some circumstances, I may also consider a business plan. Final papers will be due via the online course website on May 8,

2020 by 11:59 p.m. **No late papers will be accepted!!!** Students will also be expected to give a short presentation on their paper topics at the end of the semester on **April 24** or **May 1**.

All final paper topics must be approved by Professor Hutson and a short description of your paper topic will be due Friday, March 2. Professor Hutson will provide more details about the paper topic and expectations during class in the beginning of the semester.

Policy on Religious Holidays:

If you will be observing any religious holidays this semester that will prevent you from attending a regularly scheduled class or interfere with fulfilling any course requirement, notify Professor Hutson within the first two weeks of the semester. Otherwise, any absence due to a religious holiday will be treated as a missed class.

Important Dates

Midterm: Wednesday March 6, 2020

Final Papers Due: Friday, May 8, 2020

Statement of Academic Integrity:

Any test, paper or report submitted by you and that bears your name is presumed to be your own original work that has not previously been submitted for credit in another course unless you obtain prior written approval to do so from Professor Hutson.

In all of your assignments, including your homework or drafts of papers, you may use words or ideas written by other individuals in publications, web sites, or other sources, but only with proper attribution. "Proper attribution" means that you have fully identified the original source and extent of your use of the words or ideas of others that you reproduce in your work for this course, usually in the form of a footnote or parenthesis.

As a general rule, if you are citing from a published source or from a web site and the quotation is short (up to a sentence or two) place it in quotation marks; if you employ a longer passage from a publication or web site, please indent it and

use single spacing. In both cases, be sure to cite the original source in a footnote or in parentheses.

If you are not clear about the expectations for completing an assignment or taking an examination, be sure to seek clarification from Professor Hutson beforehand.

Finally, you should keep in mind that as a member of the campus community, you are expected to demonstrate integrity in all of your academic endeavors and will be evaluated on your own merits. So be proud of your academic accomplishments and help to protect and promote academic integrity at Columbia University. The consequences of cheating and academic dishonesty - including a formal discipline file, possible loss of future internship, scholarship, or employment opportunities, and denial of admission to another graduate program - are simply not worth it.

Students with Disabilities:

If you need accommodations for any physical, psychological, or learning disability or if you want me to have emergency medical information, please speak to me after class or during office hours.

Required Reading for Course:

There will not be a course reader and where possible electronic resources will be available via the online course website.

Course Content and Reading Schedule

Week #1: January 24: Introduction to the Course, Expectations and Overview Discussion of Circular Economy and Circular Cities

Recommended Readings:

None.

Week #2: January 31: Evolution of the Circular Economy

Required Readings:

Murray, Alan et al. 2017. The Circular Economy: An Interdisciplinary Exploration of the Concept and Application in a Global Context. *Journal of Business Ethics*. 140:369-380.

Kirchherr, Julian et al. 2018. Barriers to the Circular Economy: Evidence from the European Union (EU). *Ecological Economics*. 150: 264-272.

Building a Circular Future report. **(SKIM)**

Cities in the Circular Economy: An Initial Exploration (August 29, 2017)

Week #3: February 7: Overview of Circular Cities

Required readings:

Williams, Joanna. 2019. Circular Cities. *Urban Studies*. 1-17.

Savini, Federico. 2019. The Economy that Runs on Waste: Accumulation in the Circular City. *Journal of Environmental Policy & Planning*. 21:6, 675-691.

Prendeville, Sharon et al. 2018. Circular Cities: Mapping Six Cities in Transition. *Environmental Innovation and Societal Transitions*. 26. pp. 171-194.

Williams, Joanna. 2019. Circular Cities: Challenges to Implementing Looping Actions. *Sustainability*. 11: 423.

Circular Economy in Cities (March 4, 2019)

Week #4: February 13: Environment

Required readings:

Ghisellini, Patrizia et al. A Review on Circular Economy: The Expected Transition to A Balanced Interplay of Environmental and Economic Systems. *Journal of Cleaner Production*. 114:11-32.

Petit-Boix, Anna and Sina Leipold. 2018. Circular Economy in Cities: Reviewing How Environmental Research Aligns with Local Practices. *Journal of Cleaner Production*. 195: 1270-1281.

"Completing the Picture: How the Circular Economy Tackles Climate Change" (September 26, 2019)

Urban Biocycles report (March 28, 2017)

Week #5: February 20: Energy

Required readings:

TBD

Week #6: February 27: Technology and Mobility

Required readings:

Medina-Tapia, Marcos and Francesc Robuste. 2018. Exploring Paradigm Shift Impacts in Urban Mobility: Autonomous Vehicles and Smart Cities. *Transportation Research Procedia*. Volume 33, 2018: 203-210.

Sahuguet, Arnaud. 2019. "Circular Data for a Circular City: Value Propositions for Mobility" in Newlab|City. Pp. 99-124.

Mesa, Nilda. 2019. "Circular Data for a Circular City: Value Propositions for Resilience and Sustainability" in Newlab|City. Pp. 125-145.

Week #7: March 6: Midterm!!!

Week #8: March 13: No Class, Studio Classes Traveling (WORK ON FINAL TERM PAPERS)

March 16-20: Spring Break

Week #9: March 27: Food

Required readings:

Cities and Circular Economy for Food report (January 24, 2019)

Case Study: California Thursdays

(**all readings will be posted on Courseworks**)

Week #10: April 3: Plastics

Required readings:

Reuse: Rethinking Packaging report (June 12, 2019)

Additional readings will be posted in Courseworks.

Week #11: April 10: Case Studies: London and New York City

Required readings:

TBD

Week #12: April 17: Policy and Economic Framework for Promoting Circular Cities

Required readings:

City Governments and Their Role in Enabling A Circular Economy Transition: An Overview of Urban Policy Levers. Ellen MacArthur Foundation. March 2019.

Additional readings TBD

Week #13: April 24: Student Presentations

Week #14: May 1: Student Presentations

Week #15: Final Paper is Due: Friday, May 8, 2020.

An electronic must be submitted via the Courseworks website by 11:59 p.m. **NO LATE PAPERS WILL BE ACCEPTED!!!**