

URBAN ECOLOGY 11:216:487/11:215:587 – PROPOSED ONLINE COURSE FOR SPRING 2023

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Office hours: by appointment, over Zoom or in-person.

Required Text and Readings

Various papers throughout the semester, posted on **Canvas**, see *Lecture Schedule* below

Course Description

Urban landscapes are rapidly expanding globally and over 50% of the human population now lives in urban areas. Because the majority of human settlements are in areas of high biodiversity, the rapid urbanization of the world has profound effects on global biodiversity. Urban Ecology is an asynchronous online seminar course, with a mix of lecture and discussion, where we will focus on the processes determining patterns of abundance and distribution of organisms in urban ecosystems, the interactions among organisms in the urban environment, the interactions between humans (including culture, socioeconomics) and nature in urban environments, and aspects of urban planning as it relates to ecology and the environment. This course has a global focus and students will examine case studies from around the world.

Pre-requisites: Principles of Ecology (11:704:351), or Plant Ecology (11:704:332), or equivalent. No pre-requisites for graduate students.

COURSE POLICIES

This course will be online, asynchronous. Each week you are expected to watch a short lecture video, read and summarize 2-3 scientific papers, and participate in the online discussion boards. You will also write a review paper or grant proposal on a topic of your choice associated with urban ecology by the end of the semester.

Each week is organized as follows (both synchronous and asynchronous weeks):

- Tuesday: lecture video released and paper summaries due, discussion leader hand-out due.
- Friday: post answer to discussion questions and pose your own questions
- Monday: answer at least one other student's question.

I will communicate with you via **your Rutgers email**, often through group messages or announcements sent through **Canvas**. The course website is also on Canvas and has the syllabus, schedule, assignments, announcements, grades, and select resources. Sign into Canvas using your NetID at <https://canvas.rutgers.edu/>. I expect you to check Canvas regularly. All **deadlines** are listed on Canvas.

I expect you will have reliable internet access. Create a back-up plan in case you lose power or internet from your home base.

Course Objectives and Learning Goals:

By the end of the course the successful student will be able to:

1. *Understand and discuss how humans are components of urban ecosystems.*
2. *Understand and discuss how urban ecosystems function, the response of plants and animal to urban environments, the ecology of community interactions in urban systems, and how urban areas affect local, regional, and global biodiversity patterns.*
3. *Read, interpret, and synthesize primary literature on urban ecology.*
4. *Effectively communicate scientific knowledge*
5. *Make scientifically informed decisions about societal issues related to urban areas.*

Assignments/Responsibilities and Assessment:

In order to assess completion of the above learning goals, students will be expected to perform the following work:

♦ **Discussions (50% of final grade):**

- Discussions (30% undergraduate's/ 30% of graduate student's final grade): One or two (graduate students) times during the semester each student will lead the online discussion board on a primary literature paper (15%). You will generate a 1-page handout summarizing the paper and posing 5 discussion questions. This assignment will assess students' ability to *read, interpret, and synthesize primary literature on urban ecology* and *their ability to effectively communicate scientific knowledge*. Students are expected to participate in each online discussion. To ensure active online discussions each week, you are expected to answer one of the discussion leader's questions, pose your own question, and answer one other student's questions. This will be assessed by your responses to the discussion handout questions and your responses to participant questions. Participation (15%) will assess your ability to *understand and discuss humans as components of urban ecosystems, how urban ecosystems function, the response of plants and animal to urban environments, the ecology of community interactions in urban systems, and how urban areas affect local, regional, and global biodiversity patterns*. Participation will also assess students' ability *effectively communicate scientific knowledge*.
- Paper Summaries (20% undergraduate's/ 20% of graduate student's final grade): Each week, students will submit a one-paragraph summary, in their own words, of *each* paper to be discussed that week. This assignment will assess students' ability to *read, interpret, and synthesize primary literature on urban ecology*.

♦ **Exams (20% of undergraduate's/ 20% of graduate student's final grade):**

There will be two exams, one mid-term exam and one final exam. The exams will be in essay format and will be take home exams in which you will have 1 week to complete, no exceptions. These exams will assess students' understanding of *humans as components of urban ecosystems, how urban ecosystems function, the response of plants and animal to urban environments, the ecology of community interactions in urban systems, and how urban areas affect local, regional, and global biodiversity patterns*.

♦ **Final Paper/Proposals (30% of final grade)**

- Final Paper (Undergraduate students only): Students will write a final paper on a topic of their choice within urban ecology. We will develop and discuss that topic during the first half of the semester. This paper will not simply be regurgitation of the literature, but a critical review of the subject. Students will be required to submit 10 relevant references for their paper by March 30 and an outline for the paper with notes from references by April 13. This assignment will assess students' ability to *read, interpret, and synthesize primary literature on urban ecology, effectively communicate scientific knowledge, and make scientifically informed decisions about societal issues related to urban areas.*
- Grant Proposal (Graduate students only): Graduate students will write a grant proposal on a topic in urban ecology. More information on this later. Students will be required to submit 10 relevant references for their proposal by March 30 and an outline for the proposal with notes from references by April 13. This assignment will assess students' ability to *read, interpret, and synthesize primary literature on urban ecology and effectively communicate scientific knowledge.*

Assessment Scale

All assignments are due when specified. **No late work will be accepted.** No extra credit will be awarded, but students are encouraged to submit work early for initial comments. Any requests for a grade change must be in writing, within one week of receiving the graded assignment/exam in question. Grade scale: 100-90%= A, 85-89.9%= B+, 80-84.9%= B, 75-79.9%= C+, 70-74.9%= C, 65-69.9%= D+, 60-64.9%= D, <60%= F.

Academic Honesty

Plagiarism is the most common form of cheating (intentionally or not). Students are expected to understand what constitutes plagiarism and are expected to avoid it. If a student is caught plagiarizing, they will be penalized. All sources must be provided. All assignments, exams, papers must be written in the student's own words. If a student is caught cheating from another student – both students will be penalized.

Office of Disability Services

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you and your instructor with a Letter of Accommodations. Please discuss the accommodations with your instructors as early in your courses as possible. To begin this process, please complete the registration form (<https://webapps.rutgers.edu/student-ods/forms/registration>).

2023 Schedule. The first paper (or two) listed for each week are the main papers introducing the subject. The other papers, marked with an *, are papers you must write weekly 1-paragraph summaries for and we will be discussing online. See specific assignment documents on Canvas for more information.

Week	Week of (Tuesday)	Topics	Readings	Other Assignments
1	January 17	Introduction to the course and it's organization <i>Video:</i> Logistics		Getting to know you survey on Canvas
2	January 24	History of Urban Eco, Urbanization patterns <i>Video:</i> IntroductionUrbanEco	Wu 2014 Ellis & Ramankutty 2008 Cadenasso et al. 2007*	
3	January 31	Urban Landscape Ecology <i>Video:</i> UrbanLandscapes	Lepczyk et al. 2017 Goddard et al. 2010 La Sorte et al. 2020*	
4	February 7	Global Patterns and Filters of Urban Biodiversity <i>Videos:</i> Filters	Aronson et al. 2016 Delgado de la flor et al. 2020*	
5	February 14	Urban Wildlife Ecology – Birds <i>Videos:</i> Birds	Fisher et al. 2015 Rebolo-Ifrán et al. 2017* VanDoren et al. 2017*	
6	February 21	Urban Wildlife Ecology – Mammals <i>Videos:</i> UrbanMammals	Beninde et al. 2015 Magle et al. 2019 Parker & Nilon 2008*	
7	February 28	Urban Biodiversity – Plants <i>Video:</i> UrbanPlants	Williams et al. 2009 Madre et al. 2014* Kalusová et al. 2017*	Mid-term Exam released on March 4
8	March 7	Urban Evolutionary Ecology <i>Video:</i> UrbanEvoEco	Johnson & Munshi-South 2017 Richardson et al. 2020*	Mid-Term Exam Due March 11
9	March 14	<i>Spring Break</i>		
10	March 21	Urban Socio-Ecological Linkages <i>Video:</i> SociologicalLinkages	Warren et al. 2010 Belaire et al. 2016* Grove et al. 2014*	

11	March 28	Ecosystem Services <i>Videos(2):</i> EcosystemServices_ Parts1-2	Gomez-Baggethum et al. 2013 Manes et al. 2012*	References due for paper/proposal
12	April 4	Urban Greenspaces <i>Video:</i> UrbanGreenspaces	Aronson et al. 2017 Goddard et al. 2010 TBA* Carrus et al. 2015*	
13	April 11	Urban Environmental Justice & Greenspaces <i>Video:</i> UrbanEJ	TBA TBA* TBA*	Paper/proposal outline due
14	April 18	Urban Ecological Design and Planning <i>Video:</i> DesignPlanning	Ignatieva et al. 2011 Nilon et al. 2017 Jackson et al. 2011* Villasenor et al. 2017*	
15	April 25	Urban Restoration Ecology <i>Video:</i> UrbanRestorationEco	Handel et al. 2013 Bateman et al. 2015*	Paper/Proposals Due
	May 2	Final Exam TBA – Final Exam will be released one week before it is due.		