

# Conservation Biology

## Course Objectives:

The goal of this course is for students to develop a basic understanding in conservation biology with an emphasis on global change biology. In this course, we will cover topics such as biodiversity, ecosystem services, habitat fragmentation, human-wildlife interactions, anthropogenic climate change, and how to communicate climate change and conservation to the public. It is said that humans are currently experiencing an environmental crisis, that we have initiated a new geological era – the Holocene and that we are in the midst of a sixth extinction. The aim of this course is to train students on proper conservation techniques and understandings.

In addition to being familiar with major conservation biology concepts, I expect students to be able to write up a conservation regime program for one endangered species that could be implemented by either a zoo, non-profit organization, or governmental agency. I also expect students to master various communication skills, whether it is to stakeholders, management, or the public and to feel comfortable assessing and designing program regimes for habitats or populations.

We will meet every Monday and Wednesday from 11:30a - 1:00p.

## Resources:

- Kareiva, P., Marvier, M., & Silliman, B. *Effective Conservation Science: Data not Dogma*. 2018. Oxford University Press, Oxford, UK. (ECS)
- Van Dyke, F. *Conservation Biology: Foundations, Concepts, Application*. 2008. Springer Science+Business Media, New York, NY. (CB) (**There are many copies available at the library.**)

**Additional Reading:** Additional primary literature articles will be available for students on the website and are listed in the ‘Reading’ column of the schedule below. Full citations are also listed.

**Schedule:**

Class	Topic	Reading
<b>M:</b> 10 Sept	History of Conservation	<b>CB (1-26)</b> & Ludwig <i>et al.</i> (1993)
<b>W:</b> 12 Sept	Biodiversity Defined	<b>CB (83-117)</b> & Myers <i>et al.</i> (2000) & Monastersky (2014)
<b>M:</b> 17 Sept	Measuring Diversity	Gotelli & Colwell (2001) & Sakschewski <i>et al.</i> (2016)
<b>W:</b> 19 Sept	Stability and Resilience	Lehman & Tilman (2000) & Isbell <i>et al.</i> (2015)
<b>M:</b> 24 Sept	Extinction	Barnosky <i>et al.</i> (2015) & Berger <i>et al.</i> (2001) & Doughty <i>et al.</i> (2015) & <i>Bringing them back to life</i> (Zimmer, 2013)
<b>W:</b> 26 Sept	Genetic Diversity	<b>CB: 153-181</b> & Daru <i>et al.</i> (2017) & DeSalle & Amato (2004)
<b>M:</b> 1 Oct	Populations & Baselines	<b>CB: 213-240</b> & Pinnegar & Engelhard (2007)
<b>W:</b> 2 Oct	Habitat Fragmentation	<b>CB: 279-309</b> & Tewksbury <i>et al.</i> (2002) & Fischer & Lindenmayer (2007)
<b>M:</b> 8 Oct	Restoration & Rehabilitation	Ruiz-Jaen & Aide (2005) & Kaiser-Bunbury <i>et al.</i> (2017) & Hiers <i>et al.</i> (2016)
<b>W:</b> 10 Oct	Natural Restoration & Fire	Cromsigt & te Beest (2014) & Donaldson <i>et al.</i> (2017) & Pellegrini <i>et al.</i> (2017)
<b>M:</b> 15 Oct	Ecosystem Services	Dee <i>et al.</i> (2017) & <b>ECS: 19-24</b> & Worm <i>et al.</i> (2006)
<b>W:</b> 17 Oct	Conservation Economics	Forum (2010) & <b>CB: 383-411</b> & Costanza <i>et al.</i> (1997)
<b>M:</b> 22 Oct	Conservation Management	<b>CB:349-378</b> & <b>ECS: 58-63</b>
<b>W:</b> 24 Oct	Ethics	<b>CB: 29-53</b> & Cohen (2014)
<b>M:</b> 29 Oct	Anthropogenic Climate Change	<b>CB:121-150</b> & Runting <i>et al.</i> (2016) & Bonachela <i>et al.</i> (2015)
<b>W:</b> 31 Oct	Climate Change: Phenology	Parmesan & Yohe (2003) & Pau <i>et al.</i> (2011) & Edwards & Richardson (2004)
<b>M:</b> 5 Nov	Climate Change: Range Shifts	Chen <i>et al.</i> (2011) & Parmesan <i>et al.</i> (1999)
<b>W:</b> 7 Nov	Invasive Species Debate	Wolkovich <i>et al.</i> (2014) & <b>ECS: 39-44</b> & McLACHLAN <i>et al.</i> (2007)

Class	Topic	Reading
M: 12 Nov	Human-Wildlife Interactions	Blom <i>et al.</i> (2010) & Zimmerman <i>et al.</i> & Ogra & Badola (2008)
W: 14 Nov	Objectivity in Conservation	<b>ECS: 1-15</b> & Marvier <i>et al.</i> (2016)
M & W: 19 & 21 Nov	Thanksgiving Break!	
M: 26 Nov	Food Systems & Agriculture	<b>ECS: 73-79 &amp; ECS: 104-109</b> & Tscharntke <i>et al.</i> (2012)
W: 28 Nov	Plant-Pollinator Interactions	Genung <i>et al.</i> (2017) & Marvier <i>et al.</i> (2016)
M: 3 Dec	Citizen Science & the Public	<b>CB: 415-440</b> & Wiggins & Crowston (2011)
W: 5 Dec	Communicating Conservation	Knowlton (2017) & Webb (2005) & <i>Uninhabitable Earth</i> (Wallace-Wells, 2017)

**Grading Rubric:**

Type	Percent of Grade
Participation & Discussion	25
Midterm	30
Final Exam and Project	45

## References

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