Course: Global Change Biology

In the year 2000, atmospheric chemest Paul Crutzen suggested that humans had fundamentally changed Earth systems so much that is was time to declare a new Geological epoch: the Anthropocene. While this proposal has yet to be formally accepted, the impact of the statement has given rise to a whole new scientific sub-discipline seeking to understand the impact of these massive Earth systems changes on living organisms: Global Change Biology. In part I of this course we will examine the main drivers of global change, carbon emissions and climate change, and their cascading effect. In part 2 we will consider the broadly

Topic	Reading(s)
1] Introducing The Earth's Climate System	IPCC 2014
2] Tools for the study of climate change	Newman Ch.1
3] Paleoclimate: the effects of rapid climate change in deep time	Knoll 2007
4] Predicting Future Climates	Newman Ch.2
5] Localized impacts of climate change: drought, disturbance	
6] Intensification and land conversion	Foley 2005
7] Carbon and nutrient cycling	Diaz 2008
8] Eutrofication	Diaz 2008
9] Ocean acidification	Anthony2008, Kroeker 2013
10] Urbanization	Grimm 2008, Radeloff 2005
10] Interacting drivers	Newman Ch. 13, Hoff 2011
11] Plant physiology and biosphere productivity	Korner 2006
12] FACE case studies	FACE review
13]Thermal tolerance	Kaliq 2014, Deutsch 2008
14] Plasticity and phenological shifts	Cleland 2012
15] Global change and evolution	Newman Ch.8
17]Migration and dispersal	Chen 2011, Schloss 2012
18] Habitat Fragmentation	Hamann 2012, Fischer 2011
19] Invasion	Liu 2016, Sax 2002
20] The 6th extinction	
21] Novel ecosystem and niche fillers	Clavel 2010, Hobbs 2009
21] Conservation	Naughton-Treves2005, McGwire 2016
22] Ecological Restoration and Carbon Farming	Harris 2006, Lindenmeyer 2012
23] Assisted Migration	Nunez 2013, Willis 2009
24]Communicating science in an era of global change	Knowlton2017, Godet 2018

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