Communities and Climate Change BSC2930 Class Periods: MWF Period 3 (9:35-10:25 am) Location: Matherly Hall (MAT) 0116 Academic Term: spring 2020 pdf of syllabus

Instructor

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Course Description

Communities are the collection of citizens, neighbors, governing bodies, and institutions where most people live their daily lives. The community is where the impacts of climate and ecosystem disruption are experienced, and it will be the front line of adaptation to these impacts. Forward looking community leaders seek to develop decision-making processes to use local and regional knowledge to respond to the impacts of climate change. Our global economic system and political divisions have left many people disconnected from their communities and living in relative isolation among their neighbors. Re-establishing these human connections and developing alternative economies are prerequisites for mounting effective community responses to climate change.

This course provides an overview of anthropogenic climate change and helps students develop an understanding of local and regional resilience and adaptive responses to specific impacts of climate change. Impacts to be reviewed include extreme temperature, extreme precipitation, sea level rise, population migrations, food and water security, public health, disruption of ecosystem services, and disruptions of economy. Climate change will be presented from a holistic perspective that includes understanding of fossil emissions, anthropogenic disruption of ecosystems and the biosphere, and community-based adaptation. Students will review critical timelines for global efforts at mitigation and options for how communities can adapt and build resilience with respect to specific future scenarios. Those communities that have been dealing with climate variability for decades and have a wealth of knowledge about how to adapt will be used for case studies. Case studies of adaptive responses by local and regional communities in Florida will provide the basis of group student projects. Students will choose from a variety of local and regional organizations to explore how these groups are responding to climate change.

Course Delivery

During the first third of the course, Monday and Wednesday classes will focus on direct content delivery, while Friday class will consist of literature discussions and preparation of group projects. Development of the group projects will begin by the third week of classes. During the remaining two-thirds of the course, Monday will be devoted to lectures that will introduce the core knowledge of the week's topic and ensure timely achievement of course objectives. The weekly literature and case-study discussions will be led by the instructor and students who are assigned to lead discussions on Wednesday and Friday. Group activities will initially focus on identifying local and regional organizations for study. Groups of 5-7 (depending on class size) will be created by Canvas. Each group will be responsible for researching the climate preparedness of their respective assigned organization. This will include interviews and the development of scholarship based on the literature. Each individual of a group will be responsible for a final report on their findings and groups will give a presentation on these findings during the final two weeks of the semester.

Text

Readings will be assigned from the required text, *Toward Sustainable Communities*. Mark Roseland. 2012. New Society Publishers. Available as an e-Book ISBN: 978-0865717114

Short chapters will be assigned from *The Community Resilience Reader: Essential Resources for and Era of Upheaval.* Daniel Lerch. 2017. Island Press. Available online with registration for free via the Post Carbon Institute (<u>https://reader.resilience.org/</u>) or as e-Book ISBN: 978-1610918602

Scholarship will be developed through lectures, discussion, outside readings, studies of local and regional community organizations, and case studies from the literature.

Assigned Readings, Media, and Webpages

Materials will be assigned as indicated in the course schedule below and posted to the course website by modules in full text or through links. Citations for posted articles are listed at the end of this syllabus. Quizzes will be drawn mainly from lectures and will include some materials from posted readings, media, and webpages. The main points from the assigned readings and media will be included in the lectures or as questions for classroom discussions. Students will be guided to use these materials for group projects and clarification of lectures.

Expectations

This course has high standards for student creativity and scholarship. The schedule of graded assignments intensive and will require students to keep up. The outside readings should be used to develop group projects and to clarify the lectures. The main points from required readings and media will be covered in the lectures, in reflection exercises, or as questions for classroom discussions. Each student is solely responsible for reading and following the

instructions, guidelines and schedules in this syllabus, on the course webpage, or announced in class. Independent research by students will be a significant portion of assessment. Not having read or followed the instructions will not constitute an excuse for missing an assignment, exam, or other assessment. Please set your preferences in Canvas so that you receive timely notifications of course announcements and other information. Check Announcements in Canvas regularly as e-mail notifications from Canvas do not always go through. The amount or effort including class time is estimated to be 12 hours per week.

A minimum grade of C is required for general education credit.

Communications

All e-mail correspondence to the course instructor should originate from Canvas, but e-mails of a personal nature may originate from your ufl.edu account. Put your full name in the body of the e-mail, and your course number in the subject line.

When you have a question, check the following sources first to see if it is already answered, before e-mailing your instructor:

- Course Syllabus
- e-Learning announcements (this is the primary means that your Instructor has to communicate with you in a timely manner)
- e-Learning Discussion Posts

If you still cannot find the answer to your questions:

- If it is a question that others might find useful to know the answer to as well, post it in the e-Learning Discussion section.
- If it is a question specific to you (e.g., account or grade specific), send an e-mail to your instructor following the instructions above. Barring unusual circumstances, expect a reply within 24 hours (Monday through Friday). E-mails and e-Learning Discussion posts are checked at least once per day, but sometimes not more than that.

Course Website (e-Learning)

Class material including the syllabus, weekly comprehension quizzes, exam results, lecture slides, links to videos and outside materials, and other information related to the course will be posted on the course e-Learning website (http://elearning.ufl.edu). Assignments and quizzes will be available through notifications on Canvas. All quizzes and written assignments will be completed through Canvas and no paper materials will be used throughout the course. You are responsible for all announcements made in lecture and those posted on the course website. For help with e-Learning, call the UF Computing Help Desk at 352.392.4357, or visit the e-Learning support website

Course Schedule fall 2020

The course schedule will change periodically due to unfolding logistics as the course proceeds. Please check this syllabus on a regular basis.

COURSE	COURSE SCHEDULE - SPRING 2020					
Module	Date	Module Topic	Topic / Activity	Reading / Media	Assignment/Quiz	
1	6/1	Anthropogenic climate change: Causes and process	Introduction to course content and issues	-Scientific consensus -How do we know?	Introductory lecture: Listen and take only a few notes.	
	8/1		Lecture: Causes and processes	-How to (seriously) read a scientific article -Climate Adam: Hopes for our climate future	student profile on Canvas and introduce yourself to the class on the Discussion board.	
	10/1		Discussion		Reflection 1: Write a description of how you think climate change will affect you during your lifetime. Due: 12.01.20 11:59	
2	13/1	Anthropogenic climate change: Impacts	Lecture: Climate change impacts	-NCA4 2018: Impacts, risks, adaptation (summary sections only) -Larkin on adaptation	Discussion 1 posted	
	15/1		Lecture: Impacts and climate change in Florida	-Florida Climate Change	Quiz 1 posted due 19.01.20 11:59 pm	
	17/1		Discussion and lecture catch up			
3	20/1	No class				
	22/1	Public health	Lecture: Climate change and public health 1	-USGCRP Climate change & human health 2016 (summary sections only) -Dahl et al. 2019 on heat index		
	24/1		Lecture: Climate change and public health 2 Project discussion	-Ebi & Semenza 2008 -Haines & Ebi 2019	Quiz 2 due 26.1.20 11:59 pm	
4	27/1	Food and water security	Lecture: Climate change and agriculture.	-Community Resilience Reader chapter 13	Example exam questions distributed	
	29/1		Lecture: Food & water security	-Aljezzera: Food security -NCA4 2018: Water -Roseland chapters 4&5		

	31/1		Discussion		Exam 1 due 31.01.20 11:59 pm
5	3/2	Risks and hazards	Lecture: Immediate and longer-term risks	-IPCC Impacts, Adaptation, and Vulnerability (top level summary sheet) -Climate Change in the American Mind (Ballew et al. 2019)	Project proposals due 11:59 pm
	5/2		Lecture: Communication of climate change and risks	-APA report on Global Climate Change 2011 (sections 1 and 4 only)	Reflection 2: Write a description of risks and vulnerabilities to climate change of your community of origin. Due 09.02.20 11:59
	7/2		Discussion and review – risks and communication Project discussion	-Marlon et al. 2019	Discussion 2 posted
6	10/2	Risk management	Lecture: Risk and adaptive management	-Roseland chapter 12 -Kim et al. 2019 -Netherlands Room for the River	
	12/2		Risk and adaptive management discussion	-Short videos from climate.gov	Peer review of two proposals due 12.02.20 11:59
	14/2		Discussion and review of risks and adaptive management Projects work time		Self-evaluation of participation 1 due 16.02.20 11:59 Discussion 3 posted
7	17/2	Energy systems and communities	Lecture: Fossil fuel energy Lecture: Renewable energy	-Video: Amory Lovins – Reinventing Fire -U Mich: US grid energy storage -NREL: Holistic approach to distributed solar energy	
	19/2		Lecture: Community energy systems Video lecture: A primer on carbon accounting and carbon markets	-Community energy storage systems - Community energy revolution -Energy storage: Batteries not included	Quiz 3 posted due 23.02.20 11:59
	21/2		Discussion of community energy alternatives	Roseland chapters 6, 7	
8	24/2	Community- based and	Lecture: Review of concepts of community-	-CarbonBrief – Climate adaptation mapped	Reflection 3: write a description of the

	26/2	ecosystem-based adaptation		based adaptation (CBA) and ecosystem-based adaptation (EBA) Lecture: CBA and EBA example communities	-Forsyth 2017 -CBA and gender analysis -Reid 2015 -Klein et al. 2019 -Mainstreaming EBA -Recommended materials in module	ecosystem services provided to your community of origin. Due 28.02.20
	28/2			Discussion and review; Projects time	Integrating gender into	Discussion 4 posted
			Spring Br	eak		
9	9/3	Resilience planning		Lecture: Defining resilience and planning for resilience	-Rockström: TED Environment and development -Folke 2016 -Goffner et al. 2019 -Fazey et al. 2018	Example exam questions
	11/3			Lecture: Community resilience	-Roseland chapters 9, 11, 14, 16	
	13/2			Discussion of Roseland and concepts of sustainability and resilience		Exam 2 due 13.03.20 11:59
10	16/3	Case studies		Lecture: Urban sustainability	-Hunt & Watkiss 2011 (Abstract, Introduction, Conclusions; selected examples be covered in lecture) -Video: City resilience index -Video Rockefeller Foundation: 100 resilient cities	
	18/3			Case studies	-Fitzpatrick & Dunn 2019 -Roseland chapters 1,2,3, 15,16	Quiz 4 posted due 22.03.20 at 11:59 pm
	20/3				-Short readings: NYC divestment; Ft. Collin, CO, EPEAT and ClearPath; Kirkwood, MO; Mexico City air pollution; San Diego, CA, sea level rise	Discussion 5 posted
11	23/3	Transitior communi climate ei	ties and mergency	Lecture: Transition Communities overview of concept and implementation	-The Transition Handbook and Primer (summary section from document posted on Canvas) -Climate mobilization web materials	

				-Video: Transition 2.0	
	25/3		Lecture: Climate mobilization and climate emergency		Draft Annotated Bibliography due 11:59 pm
	27/3		Discussion and review		Reflection 4: Write a draft declaration of climate emergency for your community of origin. Due 29.03.20
12	30/3	Community economics & ethics	Lecture: Climate change as a moral hazard; Social discounting	-Broome 2008 -Hickel 2018 -Hsiang et al. 2017 -Raworth TED -Hanauer TED	
	1/4		Lecture: Neoliberal capitalism and the extractive economy	-Roseland chapter 17	Quiz 5 due 05.04.20 11:59 pm
	3/4		Discussion and review		Self-evaluation of participation 2
					Final Annotated Bibliography due 11:59
13 6/4 Tipping major transit rules o	Tipping points, major transitions, and rules of	Lecture: Reality and responsibility;	Reminder: Review posted explicit instructions for final report and grading rubric	Example exam questions	
	8/4	engagement	Lecture: rules of engagement during a century of disruption		
	10/4		Student presentations		Exam 3 due 10.04.20 11:59 pm
	13/4		Student presentations		
	15/4		Student presentations		
	17/4		Student presentation		
Course Summary & Conclusion	20/4	Review of major findings; recommendations			
	22/4	No class			Final report due noon

Group Projects

Group members will be assigned by Canvas. Each group of 3 students will explore the climate change planning and programming of one community organization. An organization can be chosen by the group subject to approval by the instructor and you should seek an organization

that will provide a comparative analysis with respect to case examples discussed in class. The instructor will facilitate introduction of the groups to their chosen community organization. A list of local, regional, and state organizations is provided below. A term project will be developed by the group based on (1) a written proposal, (2) engagement with the organization, (3) an annotated bibliography with relevant readings and comparison to similar organizations, (4) a group presentation, and (5) a final report submitted independently by each student.

Grading rubrics and explicit instructions will be provided for each phase of the project including detailed instructions for construction of your annotated bibliography. The final report should contain specific recommendations for development of adaptive strategies and building resilience with respect to the community organization assessed by each group. Each student will provide a peer review of two presentations and two project proposals according to rubrics provided. Project proposals will consist of two paragraphs describing the organization and their adaptive planning (or absence thereof) and role in community adaptation.

Organizations to explore include the list below. You should feel free to propose your own for approval by the instructor.

Local organizations

Gainesville Regional Utilities <u>future power</u> needs Alachua County Department of <u>Environmental Protection</u> Alachua County <u>Growth Management</u> and Comprehensive Plan Alachua Conservation Trust <u>https://www.alachuaconservationtrust.org/</u> We are Neutral <u>https://www.weareneutral.com/#intro</u> Current Problems <u>https://www.currentproblems.org/home-2</u> The Florida Springs Institute <u>https://floridaspringsinstitute.org/</u> Rebuilding Together for North Central Florida <u>https://rebuildingtogetherncf.org/</u> Alachua County Commission <u>https://alachuacounty.us/Depts/BOCC/Pages/BOCC.aspx</u> Gainesville City Commission <u>http://www.cityofgainesville.org/CityCommission.aspx</u> Community Weatherization Coalition <u>http://communityweatherization.org/</u>

Regional and State Organizations

Southeast Florida Regional Climate Change Compact Sea Level Rise Task Force for Miami/Dade government Florida Sierra Club <u>https://www.sierraclub.org/florida</u> St. Johns Riverkeeper <u>http://www.stjohnsriverkeeper.org/</u> Jacksonville Waterways Commission Regional Resiliency Coalition <u>http://www.tbrpc.org/resiliency/</u>

Attendance

Attendance is expected. If you are absent from class when an exam or other activity requiring your participation occurs, you will receive a zero grade for the activity unless the absence is excused. An absence is considered excused if there is an acceptable reason according to UF policy (https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx). Examples of acceptable reasons are medical illness, religious holidays, and military obligation. Students who participate in university-sponsored athletic or scholarly activities are permitted to be absent 12 scholastic days per semester without penalty. For religious holidays, students are required to notify the instructor prior to the absence, but documentation of the religious holiday is not required. In all other cases, the following policies apply: It is your responsibility to notify the instructor of an excused absence and to provide documentation of an acceptable reason. Otherwise, the absence will be considered *unexcused*. Whenever possible, notify the instructor by email prior to the absence. When this is not possible (e.g., due to unexpected emergency or illness), the instructor should be notified as soon as possible. You are strongly encouraged to read the assigned materials before coming to class as this will make it easier to comprehend the lecture material. If you miss class, visit the e-Learning site for any lecture notes and course announcements.

Exams

There will be three 70-minute short-essay exams during the semester. There is no final exam. Exams will be administered online and made available for 48 hours. Exams will be short essay and emphasize lecture materials and specific parts of the outside readings and media. Exams will be open book and taken on your personal laptop and written and submitted through the Canvas website.

Exams will be curved and normalized to a scale of 0 to 100 after the distribution of scores has been assembled. Review of your performance on an exam will be available by appointment one week after the date of the exam. Exams will not be available for review after the semester has ended.

No make-up exams will be given without prior permission or documentation of illness. Students that will be missing an exam due to a prearranged university-approved excused absence (sports, etc.) should let the instructor know a minimum of two weeks in advance. These students may be required to take the makeup exam before the scheduled in-class exam.

In case of illness during the exam period, a letter from the student's primary care provider is required. This letter must state that the student was unable to complete the exam on the scheduled dates (i.e., a letter stating only that the student was seen in a clinic is not sufficient). A personal matter requires a note from the Dean of Students (P202 Peabody Hall). These notes must be received within five business days after the exam. Make up exams will be short-answer or essay format.

Comprehension Quizzes

There will be 5 online quizzes to assess comprehension during the course of the semester. Questions will be drawn from lectures, readings, and media. Quizzes will be in objective multiple-choice format. You will be allowed two attempts for each question and the highest score received will be recorded for that quiz. All quizzes must be completed by the stated date and time. Extensions will not be given because of technical or personal issues that occur within 24 hours of date of the quiz. Quizzes will have a set time limit – typically 60 minutes. Students are expected to work independently on the quizzes and to not use notes. The lowest quiz score will be dropped.

Online and Classroom Group Discussions

Your instructor will post 5 questions for discussion online. You must post a response and give your justified assessment (8 points) and respond briefly to one other classmates (2 points). Posts and responses must be completed within 5 business days.

Each of you will be asked to give a self-assessment of your in-class participation. The instructor will evaluate the self-assessments and assign points.

Participation

Twice during the semester students will be asked to self-assess their online and in class [-participation according to the following scale:

- _____ I contribute several times during a class discussion. (25)
- _____ I contribute at least once during a class discussion. (20)
- _____ I often contribute to class discussion. (10)
- _____ I occasionally contribute to class discussion. (5)
- _____ I rarely contribute to class discussion. (0)

Field trips and attendance at talks

Opportunities will arise during the course of the semester for engagement with governmental and nongovernmental bodies in Alachua County. In addition, there are several scheduled talks by experts during January and February. Trips will be scheduled as much in advance as possible and 5 points will be awarded for participation. A typical trip may be to witness and participate in a County Commission of City Commission meeting. The scheduled talks are listed below, but you should feel free to propose attendance at other relevant talks at UF. To ensure credit notify your instructor when you have participated in a field trip.

Public talks during spring 2020

1) Florida State Climatologist David Zierden is director of the Florida Climate Center, the authority on climate variability in Florida. David will be giving a public talk on Florida climate science and impacts aimed at undergraduates: introducing them to the science and statewide & local impacts. His talk is scheduled for 5 p.m Wednesday January 29th at the Cancer and Genetics Building auditorium: CGRC 101, though we have requests in for closer-in auditoriums should one open once drop-add is over. Immediately following his lecture, David will do a special workshop to introduce the key half-dozen climate information resources he uses from NOAA and other agencies. These tools have a learning curve so this will be an introduction.

2) Holly Wilson, who oversees the Environmental Health Tracking Program for the Centers for Disease Control and Prevention in Atlanta, will be visiting UF Feb 4th and 5th, Tuesday and Wednesday, and is available to do workshops in your classes. (If Tues & Weds don't work, Thurs a.m. is possible/pls let me know ASAP.) Holly will be demonstrating CDC's Tracking Network and Data explorer, ie, how to perform a query, data visualization options, etc. Holly can visit your classroom to demonstrate the database--and/or we could create special workshops or brown bags for undergrads/grad students/faculty.

3) The College of Journalism's spring science journalist in residence is **Jenny Staletovich**, environmental reporter at South Florida public radio station WLRN, who has covered the South Florida impacts of climate change for several years. **Her public talk is scheduled for Wednesday night, Feb 26th, at Pugh Hall Ocora, 6 p.m.**

Assessment	Points
In-class Exams (3 @ 50 pts each)	150
Online quizzes (5 @ 20 pts each)	100
Reflections (4 at 10 pts each)	40
Online Discussions (5 at 10 points each)	50
Self-assessment of in-class participation (2@25 points	50
each)	
Field trips & speaker events (2 at 10 pts each)	20
Group project proposal	20
Peer Review of Term Project Proposal (2@15 pts each)	30
Presentation of Term Project	100
Annotated Bibliography for Term Project	100
Final Project Report	100
Total	760

Grades

Grading Policy

Percent	Grade	Grade Points	Percent	Grade	Grade Points
94.0 - 100.0	A	4.00	73.0 – 75.9	С	2.00
90.0 - 93.9	A-	3.67	70.0 - 72.9	C-	1.67
86.0 - 89.9	B+	3.33	67.0 - 69.9	D+	1.33
82.0 - 85.9	В	3.00	63.0 - 66.9	D	1.00
79.0 - 81.9	B-	2.67	60.0 - 63.9	D-	0.67
76.0 - 78.9	C+	2.33	0 - 59.9	E	0.00

More information on UF grading policy may be found at: <u>http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades</u> <u>https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx</u>

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <u>https://www.dso.ufl.edu/drc</u>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

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.aa.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.aa.ufl.edu/students/.

University Honesty Policy

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 (https://sccr.dso.ufl.edu/process/student-conduct-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class. This course will use Turnitin to identify plagiarizing.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <u>http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html</u>

Materials for Projects and Discussion

Books

Required Text: *The Community Resilience Reader*. 2017. Lerch, Daniel (ed). Post Carbon Institute. Island Press. ISBN-13:978-1-61-91-860-2 (eBook)

Required Text: *Toward Sustainable Communities.* 2012. Roseland. New Society Publishers. ISBN: 978-0865717114 (eBook)

Suggested Text Provided: *The Transition Companion*. 2011. Hopkins, Rob. Green Books. ISBN 978-0-85784-040-0 (pdf version)

Climate Justice. 2018. Robinson, Mary. Bloomsbury Publishing. ISBN eBook 978-1-63286-930-2.

Climate Change and Society. Dunlap, R. E., Brulle, R. J. (eds). 2015. Oxford University Press. ISBN 978-0-10-026908-1 (eBook)

Doughnut Economics. Raworth, Kate. 2017. Chelsea Green Publishing. ISBN 9781603586757 (eBook)

Journals*

Proceedings of the National Academy of Sciences US

<u>Nature</u>

Nature Communications

Science Advances

Scientific Reports

Earth's Future

Nature Climate Change

Sustainability Science

Ecology and Society

Global Environmental Change

Climatic Change

Climate Risk Management

*All are freely available if accessed from UFL.EDU or through UF Library as proxy

Sources of Literature Reviews and Assessment

US Climate Resilience Toolkit. <u>https://toolkit.climate.gov/tools</u>

US Global Change Research Program overview of resources <u>https://www.globalchange.gov/browse</u>

US Global Change Research Program report on human health <u>https://www.globalchange.gov/browse/reports/impacts-climate-change-human-health-united-states-scientific-assessment</u>

UN Intergovernmental Panel on Climate Change (IPCC) <u>https://www.ipcc.ch/</u> and specifically <u>https://www.ipcc.ch/working-group/wg2/</u>

UN Development Program for Climate Change Adaptation. <u>https://www.adaptation-undp.org/resources/featured</u>

ICLEI (International Council for Local Environmental Initiatives) USA. Local Governments for Sustainability. <u>http://icleiusa.org/</u>

Selected Literature (peer-reviewed journal articles and reports that may be listed in course schedule indicated by *)

*American Psychological Association report on Psychology and Global Climate Change. <u>http://www.apa.org/science/about/publications/climate-change.aspx</u>

Arbabzadeh et al. 2019. The role of energy storage in deep decarbonization of electricity production. <u>https://doi.org/10.1038/s41467-019-11161-5</u> www.nature.com/naturecommunications

Ayers & Forsyth (2009). Community-based adaptation to climate change: Strengthening resilience through development. Environment, 51(4), 22–31.

*Ballew et al. (2019) Climate Change in the American Mind: Data, Tools, and Trends, Environment: Science and Policy for Sustainable Development, 61:3, 4-18, DOI: 10.1080/00139157.2019.1589300

Baker & Ritts (2018) Smart Earth: A meta-review and implications for environmental governance. Global Environmental Change 52. https://doi.org/10.1016/j.gloenvcha.2018.07.011

Barr & Pollard. 2017. Geographies of Transition: Narrating environmental activism in an age of climate change and 'Peak Oil.' *Environment and Planning A: Economy and Space*49 (1):47–64.

*Beckerman & Hepburn (2007) Ethics of the discount rate in the stern review on the economics of climate change. World Economics 8.

https://www.researchgate.net/publication/23725084 Ethics of the Discount Rate in the St ern_Review_on_the_Economics_of_Climate_Change

*Broome (2008) The ethics of climate change. Scientific American. June 2008.

Carr (2008). Between structure and agency: Livelihoods and adaptation in Ghana's Central Region. Global Environmental Change, 18(4), 689–699.

*Chassignet et al. (eds.) (2016) Florida's Climate. Florida Climate Institute. Summary.

*Cinner et al. (2018) Building adaptive capacity to climate change in tropical coastal communities. Nature Climate Change 8. <u>https://doi.org/10.1038/s41558-017-0065-x</u>

Conway & Schipper (2011). Adaptation to climate change in Africa: Challenges and opportunities identified from Ethiopia. Global Environmental Change, 21(1), 227–237.

*Cook et al. (2019). America Misled: How the fossil fuel industry deliberately misled Americans about climate change. Fairfax, VA: George Mason University Center for Climate Change Communication.

Cutter (2003). The vulnerability of science and the science of vulnerability. Annals of Association of American Geographers, 93(1), 1–12.

Dietz et al. (2008) Economics ethics and climate change. SSRN <u>https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1090572</u>

Dodman & Mitlin (2013). Challenges for community-based adaptation: Discovering the potential for transformation. Journal of International Development, 25(3), 640–659.

Dumaru (2010). Community-based adaptation: Enhancing community adaptive capacity in Druadrua Island, Fiji. WIRES: Climate Change, 1, 751–763.

Dun & Gemenne (2008). Defining environmental migration. Forced Migration Review, 31, 10–11.

*Ebi & Semenza (2008) Community-Based Adaptation to the Health Impacts of Climate Change, Am J Prev Med: 35. doi:10.1016/j.amepre.2008.08.018

Faulkner et al. (2015). Meaningful measurement for community-based adaptation. New Directions for Evaluation, 147, 89–104.

Faulkner et al. (2018) Analyzing community resilience as an emergent property of dynamic social-economic systems. Ecology and Society 23. <u>https://doi.org/10.5751/ES-09784-230124</u>

*Fazey et al. (2018) Community resilience for a 1.5°C world. Current Opinion in Environmental Sustainability 31. <u>https://doi.org/10.1016/j.cosust.2017.12.006</u>

*Folke (2016) Resilience. Ecology and Society 21. https://doi.org/10.5751/ES-09088-210444

Forsyth (2013). Community-based adaptation to climate change: A review of past and future challenges. Wiley Interdisciplinary Reviews: Climate Change, 4(5), 439–446.

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