

FAU FLORIDA ATLANTIC UNIVERSITY	NEW COURSE PROPOSAL Graduate Programs		UGPC Approval _____ UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner _____ Catalog _____	
	Department Geosciences College Science (To obtain a course number, contact erudolph@fau.edu)			
Prefix EVR Number 6938	(L = Lab Course; C = Combined Lecture/Lab; add if appropriate) Lab Code	Type of Course Lecture	Course Title Defining & Measuring Global Change Vulnerability	
Credits (See Definition of a Credit Hour) 3	Grading (Select One Option) Regular ☒ Sat/UnSat ☐	Course Description (Syllabus must be attached; see Template and Guidelines) This seminar introduces graduate students to the concepts and methods associated with scholarly research on global change vulnerability. Students will acquire the basis to design and conduct theoretically-grounded research on coupled human-environment systems.		
Effective Date (TERM & YEAR) Fall 2023				
Prerequisites None		Academic Service Learning (ASL) course ☐ Academic Service Learning statement must be indicated in syllabus and approval attached to this form.		
Prerequisites, Corequisites and Registration Controls are enforced for all sections of course.		Corequisites	Registration Controls (For example, Major, College, Level) Graduate Standing or Permission of the Instructor	
Minimum qualifications needed to teach course: Member of the FAU graduate faculty and has a terminal degree in the subject area (or a closely related field).		List textbook information in syllabus or here No textbook		
Faculty Contact/Email/Phone Colin Polsky/cpolsky@fau.edu/6-1334		List/Attach comments from departments affected by new course None		

Approved by Department Chair <u>XP2 zhao</u> College Curriculum Chair <u>Louis Merlin</u> College Dean <u>Wuh AJ Kalin</u> UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____	Date 02/16/2 02/17/2023 02/23/2023 _____ _____ _____ _____ _____
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Email this form and syllabus to UGPC@fau.edu 10 days before the UGPC meeting.

EVR 6938
Defining & Measuring Global Change Vulnerability

M, 11a–1:50p
3 credits

Fall 2016

Prof. Colin Polsky

Office: DW 312

Office hours: TBD

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Course Description

This seminar introduces graduate students to the concepts and methods associated with scholarly research on global change vulnerability. This emerging literature derives from decades of research on coupled human-environment interactions. The fundamental premise is that there is a reciprocal relationship between people and their biophysical environments.

Instructional Method

The course will be taught as a seminar. Classes will include a combination of lectures by the Professor, presentations by the students, and discussions. The readings will form the basis on which students prepare assignments and in-class presentations. This is an environmental social science course, so we take the environment as a boundary condition for understanding our focus, which is how people create, perceive, and respond to environmental challenges. Discussions may draw on ongoing projects linked with FAU's Florida Center for Environmental Studies (<http://www.ces.fau.edu/>), of which the Professor is the Director.

Prerequisites/Corequisites

This course assumes no prior background. Students from any discipline are encouraged to register. Graduate Standing or Permission of Instructor is required. This course counts towards the Seminar Core requirement for Geosciences Master's students, and towards the Urban Development and Sustainability domain for Geosciences PhD students. The course may also count as a core course for Environmental Science Master's students, and as an elective for Master's students in Urban Planning, and in Civil Engineering.

Course Objectives/Student Learning Outcomes

“Global Change Vulnerability” is a function of exposure to specific stresses, sensitivity to the exposures, and adaptive capacities that enable responses to the impacts from the sensitivities. We will examine each of these dimensions using both theoretical texts and applied case studies. We will also articulate what is new about vulnerability research – and what is not so new. Finally, students will gain an introduction to the social science methods for both data collection and analysis that are used in this field. Students who perform well in this course will therefore have the basis to design and conduct theoretically-grounded research on coupled human-environment systems. The job market for this field is growing rapidly.

Course Evaluation Method

Seminar leading: 40%. Each student will be responsible for leading at least one seminar. Depending on the number of students, and their interests, one or more class meetings may require multiple seminar leaders. All students are expected to read closely all readings for all class meetings, but the student(s) charged with leading a given week’s seminar are expected to do whatever additional work necessary to present that week’s ideas in their proper context. Seminars should, in general, follow this format: the first half (approximately) of the seminar should review the readings, and the second half should criticize the readings. Multimedia presentations and thought-provoking activities are encouraged but not required. Have fun with this opportunity!

Each week’s seminar leader(s) will meet with the Professor **ten days prior** (i.e., two Friday’s) to the day they will present. The purpose of this meeting is to discuss the structure for the presentation sufficiently far in advance for the leader(s) to be able to deliver an outstanding presentation. Students who do this activity commonly report investing 3-5 hours in preparation for every hour of “lecture,” and this class meets in 3-hour intervals – **so plan ahead!** This activity is an excellent opportunity to gain practice teaching as well as to learn a topic in detail.

Research paper (25%) & presentation (25%). Students will submit a final research paper at the end of the semester. The detailed structure of this paper may vary between students but the overall structure applies to all: students will evaluate the literature from the course against specific question(s) that interest the student. The paper must not exceed 10 pages and must adhere to these formatting parameters: 11-point Times New Roman font, 1-inch margins on all four sides, single-spaced. Writing this paper provides an excellent opportunity to prepare for a graduate-level “orals” examination because the activity requires synthesis and comparison of select scholarly literatures. In addition, students will present their work orally.

Other participation: 10%. This grade is based on (1) *attendance*, (2) *engagement*, and (3) *weekly abstracts*. Outstanding attendance and engagement are expected. Given that this class meets only once per week, significant learning is only possible if you attend regularly and engage actively with the professor and class. Consistent attendance and active engagement also indicate that you care about the course, which is a factor that matters for evaluating borderline grades at the end of the semester. Engagement further implies that you read all the required readings (selected weekly from the accompanying list), and support the other students during their presentations.

Weekly abstracts are ½-page (maximum) reviews of the week’s readings. These documents relate the student’s understanding of the main points of the readings, and any associated

questions or criticisms that the student may have. A good general outline for the abstracts is as follows:

1. What is the thesis of the individual reading?
2. How does the author argue the thesis?
3. What are your positive reactions to the individual reading (if any)?
4. What are your negative reactions to the individual reading (if any)?

Recording your *brief* answers to these questions for all readings will generate a library of article summaries that will make your “orals” preparation more efficient.

Course Grading Scale

The subjective grading framework for all grading is as follows:

Grade	Interpretation
A	Excellent understanding of principles, processes, and terminology. Not just memorization. Outstanding effort and participation.
B	Very good understanding, writing, effort, and participation.
C	Good understanding, writing, and participation. This is the level expected of all students with average effort.
D	Poor. Student is not reaching the level of understanding, writing, effort, and participation expected of the class. Still, not bad enough to fail.
F	Little understanding exhibited. This grade usually reflects little to no effort on the student's part.

Source: Yarnal.

Attendance Policy

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to <http://www.fau.edu/counseling/>

Disability Policy

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

Code of Academic Integrity

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see [University Regulation 4.001](#).

Required Texts/Readings

This is a reading-heavy seminar. The Professor will assign a subset of the readings in the attached list. (The unassigned entries are provided so that students have a more complete picture of the literature for future reference.) In addition, there are two required books for this course:

- (1) Klinenberg, E., 2002. Heat Wave: A Social Autopsy of Disaster in Chicago. University Chicago Press, Chicago, Illinois.
- (2) Eakin, H., 2006. Weathering Risk in Rural Mexico: Climatic, Institutional, and Economic Change. The University of Arizona Press, Tucson, Arizona.

Course Topical Outline

- 1) Intro to vulnerability via the Chicago School risk/hazards approach
- 2) Adaptation: “dumb” and “clairvoyant” farmers
- 3) Criticisms of the Chicago School approach
- 4) Two “New” Conceptualization of Vulnerability
- 5) Methods: general frameworks; indicators, data-reductions, and overlays
- 6) Case studies: Chicago heat waves & Mexican farming
- 7) GIS data collection & analysis
- 8) Student preparation of term paper, and associated in-class presentations

List of Readings

Reading list -- a subset to be selected prior to each class. Details subject to change.

Date	Topic	Come with questions/comments every day. All students will contribute to each class.	Session Leader(s)
Monday 22-Aug	What is environmental social science? Intro to vulnerability via the "Chicago School" risk/hazards approach.	Kates, R.W., 1985. The Interaction of Climate and Society. In: R.W. Kates, J.H. Ausubel and M. Berberian (Editors), Climate Impact Assessment: Studies of the Interaction of Climate and Society. Wiley, Chichester. Ausubel, J., 1991. Does Climate Still Matter? Nature, 350: 649-652.	Polsky
Monday 29-Aug	More: Intro to vulnerability via the "Chicago School" risk/hazards approach.	White, G. F., 1942/1945. Human Adjustment to Floods: A Geographical Approach to the Flood Problem in the United States. Department of Geography. Chicago, University of Chicago Press. Pages 1-35. White, G. F., 1961. "The choice of use in resource management." Natural Resources Journal 1(1): 23-40. White, G., 1964. Choice of Adjustment to Floods. Department of Geography Research Paper 93, University of Chicago Press, Chicago. Slovic, P., Kunreuther, H. and White, G., 1974/2000. Decision Processes, Rationality, and Adjustment to Natural Hazards. In: G. White (Editor), Natural Hazards: Local, National, Global. Oxford University Press, Oxford.	
Monday 5-Sep	NO CLASS. LABOR DAY.		
Monday 12-Sep	NO CLASS. CP IN D.C. @ Vulnerability workshop		
Monday 19-Sep	Adaptation part I: "dumb" and "clairvoyant" farmers	Rosenzweig, C., 1985. Potential CO2-induced climate effects on North American wheat-producing regions. Climatic Change, 7: 367-389. Mendelsohn, R. and Nordhaus, W., 1993. The Impact of Climate on Agriculture: A Ricardian Approach. In: Y. Kaya, N. Nakicenovic, W.D. Nordhaus and F.L. Toth (Editors), Costs, Impacts, and Benefits of CO2 Mitigation. IIASA, Laxenburg, Austria, pp. 173-207. Mendelsohn, R., Nordhaus, W. and Shaw, D., 1994. The Impact of Global Warming on Agriculture: A Ricardian Analysis. American Economic Review, 84(4): 753-771. Passell, P., 1994. Economic Scene: A study says global warming may help U.S. agriculture, The New York Times, New York, pp. 2. (This is actually three short newspaper articles.)	Polsky
Monday 26-Sep	Adaptation part II: response to "dumb" vs "clairvoyant" farmers debate	Cline, W.R., 1996. The Impact of Global Warming on Agriculture: Comment. American Economic Review, 86(5): 1309-1311. Mendelsohn, R. and Nordhaus, W., 1996. The Impact of Global Warming on Agriculture: Reply. American Economic Review, 86(5): 1312-1315. Kaufmann, R., 1998. Commentary: The Impact of Climate Change on US Agriculture: A Response to Mendelsohn et al. (1994). Ecological Economics, 26: 113-119. Mendelsohn, R., 1999. Response to Kaufmann Critique. Ecological Economics, 28: 27-29.	

List of Readings

Reading list -- a subset to be selected prior to each class. Details subject to change.

		Quiggin, J. and Horowitz, J.K., 1999. The Impact of Global Warming on Agriculture: A Ricardian Analysis: Comment. <i>The American Economic Review</i>, 89(4): 1044-1045. Mendelsohn, R. and Nordhaus, W., 1999. The Impact of Global Warming on Agriculture: A Ricardian Analysis: Reply. <i>The American Economic Review</i>, 89(4): 1046-1048. Darwin, R., 1999. The Impact of Global Warming on Agriculture: A Ricardian Analysis: Comment. <i>The American Economic Review</i>, 89(4): 1049-1052. Mendelsohn, R. and Nordhaus, W., 1999. The Impact of Global Warming on Agriculture: A Ricardian Analysis: Reply. <i>The American Economic Review</i>, 89(4): 1053-1055. Schneider, S.H., Easterling, W.E. and Mearns, L.O., 2000. Adaptation: Sensitivity to Natural Variability, Agent Assumptions and Dynamic Climate Changes. <i>Climatic Change</i>, 45: 203-221. Hanemann, W.M., 2000. Adaptation and its Measurement: An Editorial Comment. <i>Climatic Change</i>, 45: 571-581. Polsky, C., 2004. Putting Space and Time in Ricardian Climate Change Impact Studies: The Case of Agriculture in the U.S. Great Plains. <i>Annals of the Association of American Geographers</i>, 94(3): 549-564.	Polsky & _____
Monday 3-Oct	Criticisms of the "Chicago School" Approach	O'Keefe, P., Westgate, K. and Wisner, B., 1976. Taking the Naturalness out of Natural Disasters. <i>Nature</i>, 260: 566-567. Burton, I., Kates, R.W. and White, G.F. (Editors), 1978. <i>The Environment as Hazard</i>. Oxford, New York. Chapters 1-4. Torry, W.I., 1979. Hazards, Hazes and Holes: A Critique of The Environment as Hazard and General Reflections on Disaster Research. <i>Canadian Geographer</i>, 23(4): 368-383. Hewitt, K., 1980. Book Review: <i>The Environment as Hazard</i>, by I. Burton, R. Kates and G. White. <i>Annals of the Association of American Geographers</i>, 70(2): 306-311. Watts, M., 1983. On the Poverty of Theory: Natural Hazards Research in Context. In: K. Hewitt (Editor), <i>Interpretations Of Calamity From The Viewpoint Of Human Ecology</i>. Allen & Unwin, Winchester, Mass. Emel, J. and Peet, R., 1989. Resource Management and Natural Hazards. In: N. Thrift and R. Peet (Editors), <i>New Models in Geography: The Political Economy Perspective</i>. Unwin-Hyman, London, pp. 49-76. Burton, I., Kates, R.W. and White, G.F., 1981. The Future of Hazard Research: A Reply to William I. Torry. <i>Canadian Geographer</i>, 25(3): 286-289. Burton, I., Kates, R.W. and White, G.F. (Editors), 1993, 2nd edition. <i>The Environment as Hazard</i>. Oxford, New York. Last Chapter. Ribot, J.C., 1995. The Causal Structure of Vulnerability: Its Application to Climate Impact Analysis. <i>GeoJournal</i>, 35(2): 119-122.	Polsky & _____
Monday 10-Oct	NO CLASS. FALL BREAK.		
Monday 17-Oct	"New" Conceptualizations of Vulnerability: Climate/Global Change perspective	Dow, K., 1992. Exploring Differences in Our Common Future(s): The Meaning of Vulnerability to Global Environmental Change. <i>Geoforum</i>, 23: 417-436. Cutter, S., 1996. Vulnerability to Environmental Hazards. <i>Progress in Human Geography</i>, 20(4): 529-539. Adger, W.N. and Kelly, P.M., 1999. Social Vulnerability to Climate Change and the Architecture of Entitlements. <i>Mitigation and Adaptation Strategies for Global Change</i>, 4(3/4).	

List of Readings

Reading list -- a subset to be selected prior to each class. Details subject to change.

		McCarthy, J., et al., 2001 (IPCC: Schneider and Sarukhan; http://www.grida.no/climate/ipcc_tar/wg2/054.htm) Turner, B.L., Kasperson, R.E., Matson, P., McCarthy, J.J., Corell, R.W., Christensen, L., Eckley, N., Kasperson, J.X., Luers, A., Martello, M.L., Polsky, C., Pulsipher, A. and Schiller, A., 2003. A Framework For Vulnerability Analysis In Sustainability Science. Proceedings, National Academy of Sciences, 100(14): 8074-8079. Fussel, H.-M. and Klein, R.J.T., 2006. Climate Change Vulnerability Assessments: An Evolution of Conceptual Thinking. Climatic Change, 75: 301-329. Adger, N., 2006. Vulnerability. Global Environmental Change, 16: 268-281. Eakin, H. and Luers, A., 2006. Assessing the Vulnerability of Social-Environmental Systems. Annual Review of Environment Resources, 31: 365-94. Leichenko, R. and O'Brien, K., 2008. Environmental Change and Globalization: Double Exposures. Oxford University Press, Oxford. Fussel, H.-M., 2007. Vulnerability: A generally applicable conceptual framework for climate change research. Global Environmental Change, 17: 155-167. O'Brien, K., Eriksen, S., Schjolden, A. and Nygaard, L.P., 2007. Why different interpretations of vulnerability matter in climate change discourses. Climate Policy, 7: 73-88.	Polsky
Monday 24-Oct	Vulnerability Assessment Methods: The Climate/Global Change Perspective	Kelly, P.M. and Adger, W.N., 2000. Theory and Practice in Assessing Vulnerability to Climate Change and Facilitating Adaptation. Climatic Change, 47: 325-352. Stephen, L. and Downing, T.E., 2001. Getting the Scale Right: A Comparison of Analytical Methods for Vulnerability Assessment and Household-level Targeting. Disasters, 25(2): 113-135. Luers, A., Lobell, D.B., Sklar, L.S., Addams, C.L. and Matson, P.A., 2003. A Method for Quantifying Vulnerability, Applied to the Agricultural System of the Yaqui Valley, Mexico. Global Environmental Change, 13: 255-267. Luers, A., 2005. The surface of vulnerability: An analytical framework for examining environmental change. Global Environmental Change, 15: 214-223. Schröter, D., Polsky, C. and Patt, A., 2005. Assessing Vulnerabilities to the Effects of Global Change: An Eight Step Approach. Mitigation and Adaptation Strategies for Global Change, 10(4): 573-595. Polsky, C., R. Neff, et al. (2007). "Building Comparable Global Change Vulnerability Assessments: The Vulnerability Scoping Diagram." Global Environmental Change 17: 472-485.	Polsky & _____
Monday 31-Oct	Quantitative vulnerability studies: indicators, data-reductions, and overlays KING TIDE DAY	Clark, G.E., Moser, S., Ratick, S., Dow, K., Meyer, W.B., Emani, S., Jin, W., Kasperson, J.X., Kasperson, R.E. and Schwarz, H.E., 1998. Assessing the Vulnerability of Coastal Communities to Extreme Storm: The Case of Revere, MA, USA. Mitigation and Adaptation Strategies for Global Change, 3: 59-82. Hurd, B., Leary, N.A., Jones, R. and Smith, J., 1999. Relative Regional Vulnerability of Water Resources to Climate Change. Journal of the American Water Resources Association, 35(6): 1399-1409.	

List of Readings

Reading list -- a subset to be selected prior to each class. Details subject to change.

		Cutter, S.L., Mitchell, J.T. and S.Scott, M., 2000. Revealing the Vulnerability of People and Places: A Case Study of Georgetown County, South Carolina. <i>Annals of the Association of American Geographers</i>, 90(4): 713-737. Tran, L.T., Knight, C.G., et al., 2002. Fuzzy decision analysis for integrated environmental vulnerability assessment of the Mid-Atlantic region. <i>Environmental Management</i>, 29: 845-859. Wu, S.-Y., Yarnal, B. and Fisher, A., 2002. Vulnerability of coastal communities to sea-level rise: A case study of Cape May County, New Jersey. <i>Climate Research</i>, 22: 255-270. Cutter, S.L., Boruff, B.J. and Shirley, W.L., 2003. Social vulnerability to environmental hazards. <i>Social Science Quarterly</i>, 84(2): 242-261. O'Brien, K., Leichenko, R., Kelkar, U., Venema, H., Aandahl, G., Tompkins, H., Javed, A., Bhadwal, S., Barg, S., Nygaard, L. and West, J., 2004. Mapping vulnerability to multiple stressors: climate change and globalization in India. <i>Global Environmental Change</i>, 14: 303-313. Brooks, N., Adger, W.N. and Kelly, P.M., 2005. The determinants of vulnerability and adaptive capacity at the national level and the implications for adaptation. <i>Global Environmental Change</i>, 15(2): 151-163. Rygel, L., O'Sullivan, D. and Yarnal, B., 2006. A Method for Constructing a Social Vulnerability Index: An Application to Hurricane Storm Surges in a Developed Country. <i>Mitigation and Adaptation Strategies for Global Change</i>, 11: 741-764. Cutter, S. and Finch, C., 2008. Temporal and spatial changes in social vulnerability to natural hazards. <i>Proceedings, National Academy of Sciences</i>, 105(7): 2301-2306.	Polsky & _____
Monday 7-Nov	Case Studies I	Eakin, H., 2006. <u>Weathering Risk in Rural Mexico: Climatic, Institutional, and Economic Change</u> . The University of Arizona Press, Tucson, Arizona, 288 pp.	Polsky & _____
Monday 14-Nov	Case Studies II	Klinenberg, E., 2002. <u>Heat Wave: A social autopsy of disaster in Chicago</u> . University Chicago Press, Chicago, Illinois	Polsky & _____
Monday 21-Nov	GIS data collection & analysis: Exposure & Sensitivity		Polsky & _____
Monday 28-Nov	GIS data collection & analysis: Adaptive Capacity		Polsky & _____
Monday 5-Dec	In-class presentations; last day of class; final paper due date TBD.		Polsky & _____

*FAU final exam period: Dec 8-14.
TBD.*