**Instructor:**
**Dr. Kate Svyatets**
Office: CAS 116D
Email: svyatets@usc.edu
Office Hours:
Tue, Thu, 10-11 a.m. in CAS 116D

**Senior Seminar in Environmental Studies (ENST 495)**
**Location: VKC 103**
**10 a.m. - 12 p.m. Friday (or full day during field trips)**
**Fall 2017, 4 units**

**Course overview and goals**:

Students will study major global and local environmental problems and look at solutions, including the adoption of sustainable business practices in order to foster greater economic advantage, sustainable development, and global competitiveness. Students will have multiple field trips to industrial and social partner organizations, in order to learn first-hand about their leading research and technology advances. Such trips will facilitate knowledge sharing with the students, with the goal of fostering conceptualization and discussion of innovative, sustainable practices and ideas.

The course will provide students with knowledge and leadership ideas for a sustainable future in the areas of environmental resource management, the global economy, business development, competition, social responsibility and trust. From reading material and field trips, we will explore best local examples of decision making, strategic planning, and implementation of frameworks for sustainable development. We will study the use of new technologies including those focused on management, energy use, water use and process efficiencies.

This course focuses on environmental problems in California and the United States, especially climate change and pollution. We will examine and evaluate the existing and proposed policies at the state and local levels and will explore multiple stakeholders that influence policy and are affected by decisions. We will also look at how environmental science shapes policy decisions. The course encourages students to integrate their knowledge from previous courses as a basis for better understanding of local and global developments. Students will gain an understanding of the complexity of local environmental issues and acquire knowledge of policy debates and the design and implementation of climate policies and adaptation measures in California.

**Readings:**

Readings will be posted on the Blackboard on the weekly basis. The students are expected to come co class prepared by completing that week's readings before Friday.

**Course format and student conduct:**

The course includes local field trips, including one overnight trip to Catalina. The field trips are required. Field trips represent a significant component of this class, which places a significant responsibility on safety and conduct. While we are off campus on course-related field trips, the following activities will not be permitted (as defined by USC policies):

- no use of tobacco
- no substance abuse

- no consumption of alcohol

**On other days the class will meet for 2 hours on Fridays from 10 a.m. - 12 p.m.**

**Course outcomes:**
1. Be able to use critically the many sources of information about environmental economic policies to solve empirical problems.
2. Be able to use theoretical perspectives to identify and explain domestic and global environmental problems and the linkages among them.
3. Demonstrate the habit of accessing sources of environmental knowledge and the skill to critically interpret, assess and apply evidence.

**Learning objectives:**
- an interdisciplinary approach to complex environmental problems using basic tools of policy and international processes;
- the ability to work effectively as a member of an interdisciplinary team on complex problems involving multiple competing stakeholders and agendas;
- the ability to critically evaluate the economic and policy ramifications of diverse energy portfolios on air and water quality, climate, weapons proliferation and societal stability;
- an experience-based understanding of economic policies in California including water and energy needs, air quality, marine and coastal issues;
- the ability to write effectively about complex environmental problems and do so for both specialist and general audiences with equal facility; and
- the ability to apply quantitative reasoning skills to environmental problems including basic calculations related to sustainability issues and the use of quantitative methods in data analysis and argumentation.

Please refer to https://dornsife.usc.edu/environmental-studies/learning-objectives/ for more information.

**Research paper**:
The writing assignment of the course is an original research paper of **minimum 15 pages** (including bibliography, double-spaced). This will be on a topic of the student's choice, refined in collaboration with the instructors and reflecting the student's research interests. Please use 1-inch margins; double-spaced. Required number of sources: **15 per paper**. The instructors will provide additional guidelines on the required diversity of sources. Each student will present his/her major research points in class.

**Grading**

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|---|---|
| Midterm Exam 1 | 20% |
| Midterm Exam 2 | 20% |
| Final Exam | 25% |
| Research Paper | 15% |
| Field trips | 10% |
| Exercises, presentations, debates in class | 10% |

**Attendance:**
Attendance is required and will be taken at each class meeting. All field trips are mandatory.

**Catalina Trip:**
The course will include an mandatory overnight trip to Catalina Island. Students are required to wear closed- toe shoes on all boats. During the trip, you will be engaged in doing environmental field research on the island, as well as some fun recreational activities. While on Catalina Island, you will have a room in the USC dormitory and meals in the cafeteria. In the field students must wear either athletic shoes or hiking boots. Hiking boots are strongly recommended. Students are also encouraged to wear pants, long-sleeved shirts, hats & sunglasses for sun protection and protection against poison oak & poison ivy.

**Academic Conduct**
Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct/.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* http://equity.usc.edu/ or to the *Department of Public Safety* http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us. This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* http://www.usc.edu/student-affairs/cwm/ provides 24/7 confidential support, and the sexual assault resource center webpage sarc@usc.edu describes reporting options and other resources.

**Support Systems**
A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* http://dornsife.usc.edu/ali, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.htmlprovides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* *http://emergency.usc.edu/*will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

**Grading and Correction of Grades**
Excerpts for this section have been taken from the University Grading Handbook, located at htttp://www.usc.edu/dept/ARR/grades/gradinghandbook/index.html. Please see the link for more details on this and any other grading concerns.

A grade of Missing Grade (MG) "should only be assigned in unique or unusual situations... for those cases in which a student does not complete work for the course before the semester ends. All missing grades must be resolved by the instructor through the Correction of Grade Process. One calendar year is allowed to resolve a MG. If an MG is not resolved [within] one year the grade is

changed to [Unofficial Withdrawal] UW and will be calculated into the grade point average a zero grade points.

A grade of Incomplete (IN) "is assigned when work is not completed because of documented illness or other 'emergency' occurring after the twelfth week of the semester (or 12th week equivalency for any course scheduled for less than 15 weeks)."

**Course Schedule:**

**Week 1: August 25**
Geopolitics of energy and global energy supply

"Short-Term Energy Outlook (STEO)." U.S. Energy Information Administration. June 2017

**Week 2: September 1**
Sustainability of Energy Supply

"Net Imports of Crude Oil and Petroleum Products into the United States by Country." U.S. Energy Information Administration. March 2017

Meghan L. OSullivan, Indra Overland and David Sandalow. "The Geopolitics of Renewable Energy." Paper, Belfer Center for Science and International Affairs, Harvard Kennedy School, June 28, 2017.

"BP Statistical Review of World Energy." June 2016, bp.com/statisticalreview

**Week 3: September 8**
Climate change and the Arctic

Michel, U. (2011). Global warming and security: The security implications for NATO and the EU of a melting polar ice cap in the high north. *Connection : The Quarterly Journal*, 10(4), 11-50.

Werrell, C. E., & Femia, F. (2016). Climate change, the erosion of state sovereignty, and world order. *The Brown Journal of World Affairs*, 22(2), 221-235.

"Determining the Impact of Climate Change on Insurance Risk and the Global Community. Phase I: Key Climate Indicators. *Solterra Solutions*. 2012.

**Week 4: September 15**
Solutions: renewable energy and sustainability

"Google Environmental Report." December 2016.

Global Reporting Initiative. "GRI Sustainability Reporting Guidelines. Version 3.1." 2011.

**Week 5: September 22**

Ocean degradation: acidification, pollution, and overfishing. Aquaculture.

Béné, Christophe & Manuel Barange & Rohana Subasinghe & Per Pinstrup-Andersen & Gorka Merino & Gro-Ingunn Hemre & Meryl Williams. "Feeding 9 billion by 2050 – Putting fish back on the menu." *Food Security*. (2015) 7:261–274. DOI 10.1007/s12571-015-0427-z

Craig, R. K. (2012). Marine biodiversity, climate change, and governance of the oceans. *Diversity*, 4(2), 224-238. doi:http://dx.doi.org.libproxy2.usc.edu/10.3390/d4020224

Craig, R. K. (2015). Dealing with Ocean Acidification: The Problem, the Clean Water Act, and State and Regional Approaches. *Washington Law Review*, 90(4), 1583-1657.

**Week 6: September 29**

Marine protected areas and their effects.

Caselle, Jennifer E., Andrew Rassweiler, Scott L. Hamilton & Robert R. Warner. "Recovery trajectories of kelp forest animals are rapid yet spatially variable across a network of temperate marine protected areas." *Nature. Scientific Reports*. 5:14102 | DOi: 10.1038/srep14102

California Department of Fish and Game, Partnership for Interdisciplinary Studies of Coastal Oceans, Channel Islands National Marine Sanctuary, and Channel Islands National Park. 2008. Channel Islands Marine Protected Areas: First 5 Years of Monitoring: 2003–2008. Airamé, S. and J. Ugoretz (Eds.). 20 pp. www.dfg.ca.gov/marine

Caselle, Jennifer. "A Decade of Protection: 10 Years of Change at the Channel Islands." Marine Science Institute UC Santa Barbara. 2013.

**Week 7: October 6**

Sustainable agriculture

Baumhardt, R. L., Stewart, B. A., & Sainju, U. M. (2015). North American soil degradation: Processes, practices, and mitigating strategies. *Sustainability*, 7(3), 2936-2960.

Auvermann, B., Bickett-Weddle, D., Kirkhorn, S., Sargeant, J. M., Ramirez, A., & Essen, S. G. V. (2010). The association between proximity to animal feeding operations and community health: A systematic review. *PLoS One*, 5(3)

GMO Disclosure & Labeling: public collaboration on the development of the new program. https://www.ams.usda.gov/rules-regulations/gmo

**Week 8: October 13**

**Midterm Exam 1 – Fri, October 13**

**Week 9: October 20**

Overpopulation

James, K. S., & Goli, S. (2016). Demographic changes in india: Is the country prepared for the challenge? *The Brown Journal of World Affairs*, 23(1), 169-187.

Zhang, Junsen. "The Evolution of China's One-Child Policy and Its Effects on Family Outcomes." *The Journal of Economic Perspectives*, Vol. 31, No. 1 (Winter 2017), pp. 141-159

Bailey, D. (2016). Situating consumption in a sustainable economic recovery: Bringing the environment back in. *British Politics*, 11(1), 119-140. doi:http://dx.doi.org.libproxy1.usc.edu/10.1057/bp.2015.15

**Week 10: October 27**

***Catalina Trip***

Wildlife extinction and conservation efforts

Kostyack, J., Lawler, J. J., Goble, D. D., Olden, J. D., & Scott, J. M. (2011). Beyond reserves and corridors: Policy solutions to facilitate the movement of plants and animals in a changing climate. *Bioscience*, 61(9), 713-719.

Plieninger, T., Ferranto, S., Huntsinger, L., Kelly, M., & Getz, C. (2012). Appreciation, use, and management of biodiversity and ecosystem services in California's working landscapes. *Environmental Management*, 50(3), 427-40.

**Week 11: November 3**

**MIDTERM II – November 3, FRIDAY**

**Week 12: November 10**

Environmental hazards in everyday life

De Coster, S., & Nicolas, v. L. (2012). Endocrine-disrupting chemicals: Associated disorders and mechanisms of action. *Journal of Environmental and Public Health*.

Clayton, E. M. R., Todd, M., Dowd, J. B., & Aiello, A. E. (2011). The impact of bisphenol A and triclosan on immune parameters in the U.S. population, NHANES 2003-2006. *Environmental Health Perspectives*, 119(3), 390-6.

**Week 13: November 17**
Environmental risk assessment and calculation: human property, health, and life.

"Climate Change and Resource Sustainability: An Overview for Actuaries." Climate Change and Sustainability Committee. Canadian Institute of Actuaries. Document 215068. August 2015

King, David, Daniel Schrag, Zhou Dadi, Qi Ye and Arunabha Ghosh. "Climate Change: A Risk Assessment." Centre for Science and Policy. UK. 2016.

**Research Paper is Due. Paper Presentations Start.**

**Week 14: November 24**

**NO CLASS – Thanksgiving Break**

**Week 15: December 1**

Sustainable business practices. Sustainable Tourism.

OECD (2015), *Climate Change Risks and Adaptation: Linking Policy and Economic*, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264234611-en

World Tourism Organization (2017), *UNWTO Annual Report 2016*, United Nations World Tourism Organization, Madrid.

**Research paper presentations**

**FINAL EXAM: Wednesday, December 6 from 8-10 a.m. (the usual location of our class)**