

GEO411 SUST413 | Past Global Change and the Human Era

Fall 2024 | Study Abroad Program in London, England

Instructor: Dr. David Beilman, Professor, University of Hawai'i at Mānoa, Department of Geography & Environment. Office hours: by appointment.

Course Prerequisites: GEOG 101, GG 101, graduate status, or instructor consent.

Course description: understanding the magnitude and extent of past environmental change, including climate change and the response and role of humankind, is a crucial tool for managing and predicting change in today's Earth system. This course explores past global change, focusing on the last two million years to the present. Topics include the development of the discipline of paleoscience, evidence of global change (e.g. greenhouse gas changes in ice cores, fossil vegetation indicators in lakes and swamps, ocean change in sediments and corals), the role of humankind and impacts on human evolution, and latest analytical approaches. Geospatial aspects and geographic connections to London, the British Isles, and Eurasia will be emphasized. The course is designed around experiences during four field excursions around the London area (see Schedule).

Student learning outcomes: students will 1) gain an understanding of past Earth dynamics, 2) cultivate a long-term perspective in their varied studies and interests, 3) experience new ideas and leading methods in this fast-changing and high-profile field, 4) develop a long-term outlook on environmental issues relevant to humankind's future, 4) demonstrate awareness of personal cultural values and regional biases, 5) demonstrate knowledge of diversity with a focus on the British Isles or topic of interest in the Study Abroad Program, 6) communicate appropriately and effectively with diverse individuals and groups, 7) demonstrate increased capacity to analyze issues with appreciation for disparate viewpoints.

Textbook: Ruddiman, WF. 2008. *Earth's Climate Past and Future (2e)*. Freeman, New York

Supplementary reading: additional readings will be assigned during the course that will draw upon the primary literature. These readings will be provided as pdf files (see Schedule and Additional Readings).

Grading: your final grade will be derived from participation points (10%), scores of two short assignments (30% total), and a final project (60%). The final project has two components: 1) by Week 7, students will have developed and discussed their project ideas with the instructor and provide a short 2-page proposal, and 2) during Week 11, students will present their projects in oral presentation form to the instructor and their peers. Participation is mandatory and points will be based on class interaction and discussions.

Final project: a proposal and oral presentation on a past global change topic of the student's interest. The project will include the identification of a research question, and *your own analysis*: visualization/plotting and interpretation of data. The project will be organized into typical natural science sections: Introduction / Background / Question, Methods, Results, Discussion, and Conclusion.

Make-ups: a make-up exam is only permitted without penalty if you miss the exam for a valid reason supported by legitimate documentation. Make-up exams will take place as soon as possible after the exam at a time and place determined by the instructor.

Field trips: The four field excursions in this course are mandatory. These include half-day trips to Westminster Abbey, The British Museum, The Kew Royal Botanic Garden, the Museum of London and St. Giles-In-The-Fields Church. All travel to field locations will be by London Underground. Students may join the instructor for travel to the location, or meet at the location. A meeting point will be determined and the instructor and student will meet promptly at the meeting time; it is suggested that students become familiar with the meeting point before class. Considerate, proper behavior and appropriate attire is required during all field trips (see student learning outcomes)

Schedule: the listed exam and assignment schedule listed in **bold** will be followed exactly. The schedule for topics will be more fluid, and may be adjusted as circumstances dictate. It is your responsibility to keep current on the covered topics – that means attending class and participating in discussions.

Week	Date	Reading	Topic
Week 1	Sept 16		Orientation week
Week 2	Sept 23	Chapter 1,3	Introduction and overview
Week 3	Sept 30	Chapter 3	<i>Field trip 1 – Westminster Abbey</i> history of thought in environmental change
Week 4	Oct 7	Chapter 7	Greenhouse to icehouse: the last 50 million years Assignment 1 – Isotopes in the Earth System due: Oct 14
Week 5	Oct 14	Chapters 8, 10	Astronomical control of solar radiation; insolation control on ice sheets
Week 6	Oct 21	Chapter 16	<i>Field trip 2 – Museum of London</i>
Week 7	Oct 28	Chapter 16 <i>Lahr 2016</i>	Humans and preindustrial climate Assignment 2 – Paleodata due: Nov 4
Week 8	Nov 4	Chapter 13	The Last Glacial Maximum Student project proposals Nov 11
Week 9	Nov 11	Chapter 14	<i>Field trip 3 – British Museum - Early Egypt Gallery</i> – critical view of climate vs. civilization
Week 10	Nov 18	Chapters 15; <i>Mulvaney et. al 2012</i>	Climate during and since the last deglaciation;
Week 11	Nov 25	<i>van Hoof et al. 2006</i>	<i>Field trip 4 – Highgate Cemetery</i> – climate, Black Death, and 2000 years of London history
Week 12	Dec 2	Chapter 17	Anthropocene – and climate of the last 1000 years Work on final project
Week 13	Dec 9		Final project : due: Dec 9

Additional readings:

- Pompeani DP, Bird BW, Wilson JJ, Gilhooly WP, Hillman AL, Finkenbinder MS, Abbott MB. 2021. Severe Little Ice Age drought in the midcontinental United States during the Mississippian abandonment of Cahokia. *Scientific Reports* 11:13829. doi: 10.1038/s41598-021-92900-x.
- Beilman DW et al. 2019. Dynamic Holocene vegetation and North Pacific hydroclimate recorded in a mountain peatland, Molokai, Hawaii. *Frontiers in Earth Science*. doi:10/3389/feart.2019.00188.
- van Hoof TB et al. 2006. Forest regrowth on medieval farmland after the Black Death pandemic: implications for atmospheric CO2 levels. *Paleogeography, Paleoclimatology, Palaeoecology* 237: 396-411.

GEOG 411: Evaluation criteria for final oral project presentation

Category	Below expectation	Satisfactory	Exceeds expectation	Score	Comments
Organization	Lacks organization (0 to 5 points)	Generally on-point, clear flow (5 to 10)	Carefully organized. (10 to 15)		
Content	Inaccurate, general, or at a level below the level of university work. Conclusions not tied to evidence or argument. (0 to 5)	Mostly accurate, but somewhat incomplete. Conclusions supported by evidence. (5 to 10)	Accurate and complete. (10 to 15)		
Style	Presenter anxious, uncomfortable and unprepared. Little interaction with audience. Visuals are unclear. (0 to 5)	Presenter overall relaxed and comfortable. Interaction with audience needs improvement. Visuals are effective. (5 to 10)	Presenter has command of material and is prepared, interacting positively with audience throughout. Extra thought clearly went into visual material. (10 to 15)		

Total points (out of 45)

Title IX

The University of Hawai‘i is committed to providing a learning, working and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking. If you or someone you know is experiencing or has experienced any of these, the University has staff and resources on your campus to support and assist you. Staff can also direct you to resources that are in the community.

As a member of the University faculty, your instructor is required to immediately report any incident of sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title IX Coordinator and the instructor/reporter cannot guarantee confidentiality, you will still have options about how your case will be handled. It is the instructor’s goal to make sure students are aware of the range of options available to you and have access to the resources and support you need. If you wish to speak with someone **confidentially** or would like to receive information and support in a **confidential** setting, you can contact any of the following on-campus resources:

Mānoa Confidential Advocate

The Mānoa Confidential Advocate offers direct services to victims and survivors of sexual harassment and sexual assault. Services offered include crisis screening and assessment, case referral, safety planning and risk assessment.

Jamie Newalu

Queen Lili‘uokalani Center for Student Services, Office 210, 2600 Campus Road, Honolulu, HI 96822 (808) 956-9499
email: manoaadv@hawaii.edu

Student Parents At Mānoa (SPAM)

Student Parents At Mānoa (SPAM) seeks to increase the visibility of and resources for student parents at UH Mānoa as they pursue education while parenting. SPAM staff provide advocacy, support, and referrals for pregnant and parenting students to help them succeed in their educational goals.

Teresa Bill

Queen Lili‘uokalani Center for Student Services, Office 211, 2600 Campus Road, Honolulu, HI 96822 (808) 956-8059
email: gotkids@hawaii.edu web: manoa.hawaii.edu/studentparents/

Counseling and Student Development Center (CSDC)

The Counseling and Student Development Center (CSDC) offers support to UHM students, staff, and faculty to assist with personal, academic, and career concerns. All services are confidential and most are free of charge for Mānoa students. They also offer free consultation to faculty and staff on personal and student-related issues as well. CSDC office hours are from 8:00 a.m. to 4:30 p.m., Monday through Friday. They also offer immediate walk in appointments for urgent or emergency/crisis services during their regular daily hours.

Queen Lili‘uokalani Center for Student Services, Office 312, 2600 Campus Road, Honolulu, HI 96822 (808) 956-7927
email: uhmcsdc@hawaii.edu web: manoa.hawaii.edu/counseling/

University Health Services Mānoa (UHSM)

[The University Health Services Mānoa](#) (UHSM) is staffed by physicians, nurse clinicians, nurses, and other support staff, and offers a wide range of medical services and programs to UH Mānoa students, with many of the services also available to UH Mānoa faculty and staff and students from other UH campuses. Services include general medical care on a walk-in basis; women’s health, sports medicine, psychiatry, and dermatology clinics by appointment; pharmacy and clinical laboratory; and student training, employment and volunteer opportunities.

1710 East West Road, Honolulu, HI 96822, (808) 956-8965
web: hawaii.edu/shs/

Additional On-Campus Resources:

Lesbian, Gay, Bisexual, Transgender (LGBT) Student Services

Lesbian, Gay, Bisexual, Transgender and Intersex (LGBTI) Student Services strives to maintain a safer and inclusive campus environment that is free from harassment and discrimination. The office provides direct services to students of the University of Hawai'i at Mānoa to confidentially discuss or seek advocacy and support for mistreatment due to their actual or perceived sex, gender identity, gender expression, or sexual orientation.

Camaron Miyamoto

*Queen Lili'uokalani Center for Student Services, Office 211, 2600 Campus Road, Honolulu, HI 96822 (808) 956-9250
email: lgbtq@hawaii.edu web: manoa.hawaii.edu/lgbtq/*

KOKUA Program | Office for Students with Disabilities

The KOKUA Program (Kahi O Ka Ulu 'Ana – “The Place of Growing”) is UH Mānoa’s primary campus unit responsible for providing disability access services to students with disabilities toward equal opportunity. Creating equal access is a shared responsibility of students, faculty, KOKUA, and the entire campus community. KOKUA is administratively situated in the Office of Student Equity, Excellence & Diversity within the Division of Student Affairs.

Queen Lili'uokalani Center for Student Services, Room 013, 2600 Campus Road, Honolulu, HI 96822 (808) 956-7511 or (808) 956-7612 email: kokua@hawaii.edu web: <https://hawaii.edu/kokua/>

Department of Public Safety (DPS)

*UH Mānoa DPS (808) 956-6911
Safety Escort (808) 956-SAFE (7233)*

Reporting

If you wish to **Report** an incident of sex discrimination or gender-based violence including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence or stalking as well as receive information and support, contact:

Dee Uwono

*Director and Title IX Coordinator, Hawai'i Hall, Office 112, 2500 Campus Road, Honolulu, HI 96822 (808) 956-2299
email: t9uhm@hawaii.edu web: <https://manoa.hawaii.edu/titleix/>*

For more information regarding sex discrimination and gender-based violence, the University’s Title IX resources and the University’s Policy, EP 1.204, go to manoa.hawaii.edu/titleix/