

FALL 2022
GEOG/ENEC 451 Population, Development and The Environment
Mon/Wed/Fri 1:25-2:15PM, Carolina Hall 220

Instructor

Dr. Clark Gray
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Drop-in office hours in 308 Carolina Hall: Mon 12-1pm, Wed 2:30-3:30pm, Fri 11am-12pm.
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Lecture outlines, readings, assignments and grades will be posted here.

Nature and Goals of the Course

Historical and recent changes in human populations, international development and the global environment are closely interconnected, though sometimes in surprising ways. These changes have brought the world to a population of close to 8 billion with both unprecedented prosperity and resilient poverty, whose actions have led to a changing climate and declining biodiversity. However this century is likely to witness a peak in the global human population, the eradication of extreme poverty and net reforestation globally. We will examine these processes through the lens of population geography, a quantitative, people-focused perspective that draws on a variety of types of data, to ask how individual decisions contribute to global outcomes as well as how individuals are affected by global change. Learning goals include to (1) understand the current state of knowledge on global population, development and the environment, and (2) read, interpret and critique peer-reviewed articles from this literature.

Structure of the Course

In general, each week of class will consist of two days of lecture and one day dedicated to discussing the week's readings. Responsibility for presenting the readings will be rotated among the students, but all students are expected to do the assigned readings and to participate in the discussion. Discussion days will also include a weekly quiz covering the readings and the preceding lectures. Outside of class, students will also read journal articles on a population-related topic of their choice and turn in regular article summaries.

Grading

Item	Pct.	Notes
Weekly quizzes	50%	Fifteen weekly, open-notes quizzes on the readings and lectures. Lowest two grades are dropped, thus no make-ups.
Article summaries	20%	Ten 1-page article summaries (double-spaced)
Class participation	10%	Weekly participation in discussions, lecture and/or office hours
Presentation	5%	One short presentation on the readings
Final exam	15%	Open-notes and partly cumulative final exam
Total	100%	

Late assignments will be docked one letter grade per class day late. The final grading scale will be set at the end of the semester based on the distribution of grades at that time.

Course Policies

- *Accessibility*: I am happy to work to make this course accessible regardless of your learning needs. Please see the ARS website for more resources: <https://ars.unc.edu>
- *Attendance* is graded via the participation grade and is the only way to receive all the material that will be covered in the quizzes. If you need to miss class, please let me know ahead of time if possible. If you do miss class, please meet with me or another student to go over the material.
- *Discrimination and harassment* of any form are unacceptable at UNC and I am happy to discuss these issues with you. More resources are available at <https://safe.unc.edu/>
- *Grade appeals*: If you feel like your work has been mis-graded, please let me know. You can also discuss these issues with the Director of Undergraduate Studies or the Chair of the Department of Geography. There is also formal UNC grade appeals process: <https://registrar.unc.edu/academic-services/grades/grade-changes/>
- *Health*: Please prioritize your mental and physical health! I am happy to work with you if you need to miss class and turn in late assignments for these reasons, but early and repeated communication is key. For mental health resources, please see: <https://caps.unc.edu/>
- *Honor code*: The submission of any work signifies understanding and acceptance of the UNC honor code: <https://catalog.unc.edu/policies-procedures/honor-code/>
- *Technology use*: We will use laptops for quizzes on Discussion days, and you are encouraged to use laptops for taking notes on Lecture days.

Gen-Ed Description: Global Understanding and Engagement <https://ideasinaction.unc.edu/>

Questions for Students

1. What forces connect and distinguish the experiences of peoples, societies, and human organization around the world?
2. How can I understand and compare differing worldviews?
3. What connections and differences exist between particular worldviews, experiences, societies, or power structures?
4. What ideas, approaches, and international sources allow scholars to compare societies?

Learning Outcomes

1. Classify and analyze diverse historical, social, and political exchanges that shape nations, regions, and cultural traditions of the world.
2. Translate among contrasting civic cultures, social values, and moral commitments that characterize differences among peoples and societies, including those beyond the North Atlantic region.
3. Assess ways that political and economic institutions shape contemporary global relations.
4. Explain human and environmental challenges that transcend national borders.

Recurring Capacities

1. We will pose problems and questions that require systematic thinking about evidence, argument and uncertainty.
2. We will consider course content in the context of human difference between and within societies; the full range of legitimate debate in its field; and/or change over time.
3. The course requires: 10+ pages of writing, presenting to the class, and collaborating in small groups to review each other's writing.

Course Schedule: Dates are tentative with the exception of the final.

Date	Activity	Assignments
Monday, August 15	Welcome	
Wednesday, August 17	Intro to population: data and methods	Presentation sign-up
Friday, August 19	Discussion 1	
Monday, August 22	Intro to population: key concepts	
Wednesday, August 24	The demographic transition	
Friday, August 26	Discussion 2	
Monday, August 29	The mortality transition	Summary proposal
Wednesday, August 31	The fertility transition	
Friday, September 2	Discussion 3	
Wednesday, September 7	Population and agriculture	Summary 1
Friday, September 9	Discussion 4	
Monday, September 12	Population and biodiversity	Summary 2
Wednesday, September 14	Discussion 5	
Friday, September 16	Guest lecture	
Monday, September 19	The epidemiologic transition 1	Summary 3
Wednesday, September 21	The epidemiologic transition 2	
Friday, September 23	Discussion 6	
Wednesday, September 28	Malnutrition and obesity	Summary 4
Friday, September 30	Discussion 7	
Monday, October 3	Fertility and development	Summary 5
Wednesday, October 5	The second demographic transition	
Friday, October 7	Discussion 8	
Monday, October 10	Population aging	Summary 6
Wednesday, October 12	Intro to migration	
Friday, October 14	Discussion 9	
Monday, October 17	Urbanization 1	Summary 7
Wednesday, October 19	Discussion 10	
Monday, October 24	Urbanization 2	Summary 8
Wednesday, October 26	International Migration: Intro	
Friday, October 28	Discussion 11	
Monday, October 31	International migration: US	Summary 9
Wednesday, November 2	International migration: Europe	
Friday, November 4	Discussion 12	
Monday, November 7	Race in the US	Summary wrap-up
Wednesday, November 9	Indigenous peoples	
Friday, November 11	Discussion 13	
Monday, November 14	Population and climate change 1	
Wednesday, November 16	Discussion 14	
Friday, November 18	Population and climate change 2	
Monday, November 21	Discussion 15	
Monday, November 28	Population and climate change 3	
Wednesday, November 30	Review	
Saturday, December 3	Final Exam 12pm	

The final exam can only be rescheduled with the approval of Academic Advising.

Reading List and Discussion Topics

Week 1: How is the earth faring with 8 billion people?

Deaton, A. (2013). Chapter 1: The Wellbeing of the World. In *The Great Escape: Health, Wealth, and the Origins of Inequality*. Princeton University Press.

Bar-On, Y. M., Phillips, R., & Milo, R. (2018). The biomass distribution on Earth. *Proceedings of the National Academy of Sciences*, 115(25), 6506-6511.

Tuholske, C., Caylor, K., Funk, C., Verdin, A., Sweeney, S., Grace, K., ... & Evans, T. (2021). Global urban population exposure to extreme heat. *Proceedings of the National Academy of Sciences*, 118(41), e2024792118.

Week 2: Are the traditional tools of population data collection running out of juice?

Coleman, D. (2013). The twilight of the census. *Population and Development Review*, 38(s1), 334-351.

Bernhardt, R., Munro, D., & Wolcott, E. (2021). *How Does the Dramatic Rise of CPS Non-Response Impact Labor Market Indicators?* (No. 781). GLO Discussion Paper.

Hotz, V. J., Bollinger, C. R., Komarova, T., Manski, C. F., Moffitt, R. A., Nekipelov, D., Sojourner, A., Spencer, B. D. (2022). Balancing data privacy and usability in the federal statistical system. *Proceedings of the National Academy of Sciences* 119 (31): e2104906119.

Week 3: Why is there a large and growing US mortality disadvantage?

Preston, S. H., Vierboom, Y. C., & Stokes, A. (2018). The role of obesity in exceptionally slow US mortality improvement. *Proceedings of the National Academy of Sciences*, 115(5), 957-961.

Case, A., & Deaton, A. (2021). Life expectancy in adulthood is falling for those without a BA degree, but as educational gaps have widened, racial gaps have narrowed. *Proceedings of the National Academy of Sciences*, 118(11) e2024777118.

Bor, J., Stokes, A. C., Raifman, J., Venkataramani, A., Bassett, M. T., Himmelstein, D., & Woolhandler, S. (2022). Missing Americans: Early death in the United States, 1933-2021. *medRxiv*. doi: <https://doi.org/10.1101/2022.06.29.22277065>

Week 4: Are the implications of global fertility decline entirely positive?

Bongaarts, J., & Guilmoto, C. Z. (2015). How many more missing women? Excess female mortality and prenatal sex selection, 1970–2050. *Population and Development Review*, 41(2), 241-269.

Cai, Y., & Feng, W. (2021). The social and sociological consequences of China's One-child Policy. *Annual Review of Sociology*, 47, 587-606.

Seltzer, N. (2019). Beyond the Great Recession: Labor market polarization and ongoing fertility decline in the United States. *Demography*, 56(4), 1463-1493.

Week 5: Should intact tropical forests be universally protected with strict conservation policies?

Geldmann, J., Manica, A., Burgess, N. D., Coad, L., & Balmford, A. (2019). A global-level assessment of the effectiveness of protected areas at resisting anthropogenic pressures. *Proceedings of the National Academy of Sciences*, 116(46), 23209-23215.

Naidoo, R., Gerkey, D., Hole, D., Pfaff, A., Ellis, A. M., Golden, C. D., ... & Fisher, B. (2019). Evaluating the impacts of protected areas on human well-being across the developing world. *Science Advances*, 5(4), eaav3006.

Jayachandran, S., J. de Laat, E. Lambin, C. Stanton, R. Audy, & N. Thomas. (2017). Cash for carbon: A randomized trial of payments for ecosystem services to reduce deforestation. *Science* 357(6348): 267-273.

Week 6: How are the world's oceans faring under human pressure?

Hilborn, R., Amoroso, R. O., Anderson, C. M., Baum, J. K., Branch, T. A., Costello, C., ... & Ye, Y. (2020). Effective fisheries management instrumental in improving fish stock status. *Proceedings of the National Academy of Sciences*, 117(4), 2218-2224.

Eddy, T. D., Lam, V. W., Reygondeau, G., Cisneros-Montemayor, A. M., Greer, K., Palomares, M. L. D., ... & Cheung, W. W. (2021). Global decline in capacity of coral reefs to provide ecosystem services. *One Earth*, 4(9), 1278-1285.

Tuholske, C., Halpern, B. S., Blasco, G., Villasenor, J. C., Frazier, M., & Caylor, K. (2021). Mapping global inputs and impacts from of human sewage in coastal ecosystems. *PloS One*, 16(11), e0258898.

Week 7: What is more worrying: global undernutrition or global obesity?

Local Burden of Disease Child Growth Failure Collaborators. (2020). Mapping child growth failure across low-and middle-income countries. *Nature*, 577(7789), 231-234.

Jaacks, L. M., Vandevijvere, S., Pan, A., McGowan, C. J., Wallace, C., Imamura, F., ... & Ezzati, M. (2019). The obesity transition: stages of the global epidemic. *The Lancet Diabetes & Endocrinology*, 7(3), 231-240.

Popkin, B. M., Corvalan, C., & Grummer-Strawn, L. M. (2020). Dynamics of the double burden of malnutrition and the changing nutrition reality. *The Lancet*, 395(10217), 65-74.

Week 8: How does access to family planning affect women's health and well-being?

Bailey, M. J., & Lindo, J. M. (2017). *Access and Use of Contraception and Its Effects on Women's Outcomes in the US* (No. w23465). National Bureau of Economic Research.

Miller, S., Wherry, L. R., & Foster, D. G. (2020). *The Economic Consequences of Being Denied an Abortion* (No. w26662). National Bureau of Economic Research.

Stevenson, A. J., Root, L., & Menken, J. (2022). *The Maternal Mortality Consequences of Losing Abortion Access*. <https://doi.org/10.31235/osf.io/7g29k>

Week 9: Should new data sources such as cell phones and satellites replace censuses and surveys?

Lu, X., Wrathall, D.J., Sundsøy, P.R., Nadiruzzaman, M., Wetter, E., Iqbal, A., Qureshi, T., Tatem, A., Canright, G., Engø-Monsen, K. and Bengtsson, L. (2016). Unveiling hidden migration and mobility patterns

in climate stressed regions: A longitudinal study of six million anonymous mobile phone users in Bangladesh. *Global Environmental Change*, 38: 1-7.

Chang, S., Pierson, E., Koh, P. W., Gerardin, J., Redbird, B., Grusky, D., & Leskovec, J. (2021). Mobility network models of COVID-19 explain inequities and inform reopening. *Nature*, 589(7840), 82-87.

Chi, G., Fang, H., Chatterjee, S., & Blumenstock, J. E. (2022). Microestimates of wealth for all low-and middle-income countries. *Proceedings of the National Academy of Sciences*, 119(3).

Week 10: Should developing countries encourage or discourage internal migration and emigration?

Fink, G., Günther, I., & Hill, K. (2014). Slum residence and child health in developing countries. *Demography*, 51(4), 1175-1197.

Clemens, M. A., & Pritchett, L. (2008). Income per natural: measuring development for people rather than places. *Population and Development Review*, 34(3), 395-434.

Stillman, S., Gibson, J., McKenzie, D., & Rohorua, H. (2015). Miserable migrants? Natural experiment evidence on international migration and objective and subjective well-being. *World Development*, 65, 79-93.

Week 11: Should the US increase or decrease the number of incoming international migrants?

Wassink, J., & Massey, D. S. (2021). The new system of Mexican migration: the role of entry mode-specific human and social capital. *Demography* 9938548.

Abramitzky, R., Boustan, L., Jácome, E., & Pérez, S. (2021). Intergenerational mobility of immigrants in the united states over two centuries. *American Economic Review*, 111(2), 580-608.

Clemens, M. A., & Postel, H. M. (2018). Deterring emigration with foreign aid: An overview of evidence from low-income countries. *Population and Development Review*, 44(4), 667-693.

Week 12: Should the US census continue to collect information about race?

Guo, G., Fu, Y., Lee, H., Cai, T., Harris, K. M., & Li, Y. (2014). Genetic bio-ancestry and social construction of racial classification in social surveys in the contemporary United States. *Demography*, 51(1), 141-172.

Liebler, C. A., Porter, S. R., Fernandez, L. E., Noon, J. M., & Ennis, S. R. (2017). America's churning races: Race and ethnicity response changes between census 2000 and the 2010 census. *Demography*, 54(1), 259-284.

Kline, P. M., Rose, E. K., & Walters, C. R. (2021). *Systemic Discrimination Among Large US Employers* (No. w29053). National Bureau of Economic Research.

Week 13: What does the future hold for farmers globally?

Lowder, S. K., Skoet, J., & Raney, T. (2016). The number, size, and distribution of farms, smallholder farms, and family farms worldwide. *World Development*, 87, 16-29.

Proctor, J., Hsiang, S., Burney, J., Burke, M., & Schlenker, W. (2018). Estimating global agricultural effects of geoengineering using volcanic eruptions. *Nature*, DOI: 10.1038/s41586-018-0417-3

Taylor, C. A., & Schlenker, W. (2021). *Environmental Drivers of Agricultural Productivity Growth: CO2 Fertilization of US Field Crops* (No. w29320). National Bureau of Economic Research.

Week 14: How will climate change affect population well-being in the US?

Hsiang, S., Kopp, R., Jina, A., Rising, J., Delgado, M., Mohan, S., Rasmussen, D., Muir-Wood, R., Wilson, P., Oppenheimer, M., Larsen, K., Houser, T. (2017). Estimating economic damage from climate change in the United States. *Science* 356(6345): 1362-1369.

Barreca, A., Deschenes, O., & Guldi, M. (2018). Maybe next month? Temperature shocks and dynamic adjustments in birth rates. *Demography*, 55(4), 1269-1293.

Minor, K., Bjerre-Nielsen, A., Jonasdottir, S. S., Lehmann, S., & Obradovich, N. (2022). Rising temperatures erode human sleep globally. *One Earth*, 5(5), 534-549.

Week 15: Will climate change displace large numbers of permanent migrants across long distances?

Chen, J., & Mueller, V. (2018). Coastal climate change, soil salinity and human migration in Bangladesh. *Nature Climate Change*, 8(11), 981.

Cottier, F., & Salehyan, I. (2021). Climate variability and irregular migration to the European Union. *Global Environmental Change*, 69, 102275.

Šedová, B., Čizmaziová, L., & Cook, A. (2021). *A Meta-Analysis of Climate Migration Literature*. CEPA Discussion Paper No. 29.