

**Health on a Rainforest Frontier: An
Undergraduate Research Workshop
Jan. 1 - Jan. 16, 2020**

I. Instructors:

Stephen Wooding, PhD
Department of Public Health
University of California Merced
Email: swooding@ucmerced.edu

Devon Graham, PhD
Project Amazonas
Email: devon@projectamazonas.org

II. Course Description:

The Amazon basin is home to more than 20 million inhabitants, most of whom live not in the heart of the forest but at its edge, in ever-transforming river cities and settlements. These populations reside at a vibrant intersection of modern and traditional cultures, material influences, and lifestyles. This field program, offered on location in the bustling Amazon port of Iquitos, Perú, investigates the complex health challenges faced on the frontier. You will explore balances between traditional and western medicine, emerging access to health care, the impacts of health literacy, and other keys to well being on the forest boundary. After an experiential introduction to the city and surrounding rural towns and villages, you will pursue research projects studying life at the interface, developing an expert understanding of health issues through firsthand experience.

III. Course Format:

This course takes an intensive, experiential learning approach emphasizing original student research, enabling participants to investigate human-environment interactions firsthand. Activities will begin with an introduction to the Iquitos region through a City as Text exercise, in which you will explore, map, analyze and document an area of the city. Based on this experience, you will work with Dr. Wooding to design and implement individual or group research projects observing, interviewing, and analyzing health in local residents. Following time in the urban setting, activity will move to a remote setting on the Orosa River, an Amazon tributary. There, you will continue your projects, discovering the health challenges faced by rural settlements and gaining insights into urban/rural differences. All activities will include opportunities for you to reflect on your experiences and apply your new understanding through discussions with other students and faculty, and through individual writing and intermediate oral and visual PowerPoint presentations. The course will culminate with a final presentation and research paper synthesizing your work.

IV. Course Requirements:

Course Requirements

Course requirements emphasize participation, engagement, and research. You will be expected to spend the majority of time working on individual and group projects designed in the first segment of the course. Taking part in activities and contributing productively, joining in discussion and scheduled presentation of work in progress, is essential throughout the session. Meetings with Dr. Wooding and Dr. Graham for updates

and advising will be daily. Group presentations at the end of the session are also compulsory.

V. Information Packets

Detailed information about several aspects of the course is provided in supplementary resource packets.

- (i) Travel - Contains information needed for travel to and from Iquitos, and your stay in Perú. It specifies dates of travel, destination airports, necessary official documents, and sources of guidance on vaccinations and medications, along with advice for packing, internet connectivity and phone communication.
- (ii) Assignment Instructions - Contains detailed instructions for the completion of assignments such as pre-proposals, research proposals, and journal entries. It also provides advice on carrying out health research in their field, including ethical concerns and strategies for approaching and interviewing subjects.
- (iii) Recommended Resources - An organized list of articles, chapters, video recordings, podcasts, and internet resources likely to add to your research but beyond those required for the course. As with the required materials, most of these will be available electronically throughout the course but you must provide your own copies of books.
- (iv) Electronic Library - This packet will be provided to you electronically. It contains copies of all required and recommended resources for the course, including Resource Packets (i), (ii), and (iii), although it does not contain copies of the required or recommended books.

VI. Readings and Resources

Reading and resource assignments will be covered according to the course schedule in Section XII. You must bring your own copies of the two required books (in section A below), Hemming (2009) and Walraven (2011). The required articles, chapters, videos, and podcasts will be provided in electronic format and available throughout the course. Additional resources are listed in the packet, *Recommended Resources*. As with the required books, books you choose to read on your own must be obtained in hard copy, but the suggested articles, chapters, videos, and podcasts will be available in electronic format throughout. Use of the internet as a further resource is welcomed, although it should be noted that access will be unavailable in remote areas.

A. Required Books

Hemming, J (2009). *Tree of Rivers: The Story of the Amazon*. London, Thames & Hudson.

Walraven, G (2011). *Health and Poverty: Global Health Problems and Solutions*. Earthscan, Washington, DC.

B. Required Articles and Chapters

Alexiades, MN, Lacaze, D (1996). *FENAMAD's program in traditional medicine: an integrated approach to health care in the Peruvian Amazon*. Chapter 26 in *Medicinal Resources of the Tropical Forest*. Balick, MJ, Elisabetsky, E, Laird, SA (Eds.), Columbia University Press, New York.

Bristol, N (2009). Dying to give birth: fighting maternal mortality in Perú. *Health Affairs* 28:997-1002.

Bussman, RW (2013). The globalization of traditional medicine in northern Perú: from shamanism to molecules. *Evidence-Based Complementary and Alternative Medicine* 2013, Article ID 291903

- Emperaire, L, Eloy, L (2014). Amerindian agriculture in an urbanizing Amazonia (Rio Negro, Brazil). *Bulletin of Latin American Research* 34:70-84.
- Gorman, P (2015). *Dengue in Iquitos, Perú*. Huffington Post.
http://www.huffingtonpost.com/peter-gorman/dengue-in-iquitos-Perú_b_831814.html
- Goulding, M (1993). Flooded forests of the Amazon. *Scientific American* 268:114-120.
- Kricher, JC (2011). Chapters 2, 3, and 4 in *Tropical Ecology*. Princeton University Press, Princeton, NJ.
- Mann, CC (2005). *Amazonia*. Chapter 9 in *1491: New Revelations of the Americas before Columbus*. New York, Alfred A. Knopf.
- Olson, SH, Gangnon, R, Elguero, E, Durieux, L, Guegan, J-F, Foley, JA, Patz, JA (2009). Links between climate, malaria, and wetlands in the Amazon basin. *Emerging Infectious Diseases* 14:659-662.
- Stoddard ST, Wearing HJ, Reiner RC Jr, Morrison AC, Astete H, Vilcarromero S, Alvarez C, Ramal-Asayag C, Sihuincha M, Rocha C, Halsey ES, Scott TW, Kochel TJ, Forshey BM. (2014). Long-term and seasonal dynamics of dengue in Iquitos, Perú. *PLoS Neglected Tropical Diseases* 7:e3003.
- Wilson, DJ (1999). *Amazonian Villages and Chiefdoms*. Chapter 6 in *Indigenous South Americans of the Past and Present: An Ecological Perspective*. Westview Press, Boulder, CO.
- UNICEF (2009). *Climate Change and Children in the Brazilian Amazon Region*.

C. Required Videos

- The Mega Cities in the Mighty Amazon River - Belem and Manaus* (Travel Planet) (1h36m43s) <https://www.youtube.com/watch?v=hIVzVG393ik>
- Wild Amazon* (National Geographic) (43m30s)
<https://www.youtube.com/watch?v=GRnWNub1qMA>

D. Required Podcasts

- Charles, D (2011). *In Heart Of Amazon, A Natural Lab To Study Diseases*. National Public Radio <http://www.npr.org/2011/06/09/137062165/in-heart-of-amazon-a-natural-lab-to-study-diseases>
- Graber, C, Mirsky, S (2015). Humans and the Amazon: A 13,000-Year Coexistence (Podcast). *Scientific American* (17m58s)
<http://www.scientificamerican.com/podcast/episode/humans-and-the-amazon-a-13-000-year-coexistence>

VII. Pre-Course Assignments

A. Reading, Viewing, and Audio Sources

The health opportunities and challenges faced by Amazonian populations are unfamiliar to most of us. As a first step toward understanding them in detail and developing an ability to investigate on your own, read and study the materials assigned in Section VII. These provide a portrait of the man-made and natural environments of the Amazon, and illustrate their complex health connections. Keep track of issues that interest you. Explore other articles and chapters, videos, and podcasts in *Recommended Resources*, and consult outside sources on your own as well, taking notes along the way.

B. Research Pre-Proposals

Following your background reading, write two pre-proposals on health issues you would like to study in Perú, following the guidelines in the attached packet, *Assignment*

Instructions. Each pre-proposal should be a single page in length with four labeled sections: (i) *Title* - A brief description of your proposed research, (ii) *Issue* - A one-paragraph background describing an observation you found interesting in our readings, (iii) *Question* - A single sentence research question relating to the issue, and (iv) *Approach* - A one-paragraph overview of the methods you could use to answer the question. This assignment should be emailed to Dr. Wooding six weeks prior to the start of the course.

C. Meetings with the Professor

You are invited to meet with the instructors prior to the course to discuss general requirements, research ideas, and questions related to travel and living in Perú. Two meetings focused on project design are required, which can take place in person, by phone, or by Skype. The first will take place six weeks before the course opening in Perú. The second will take place two weeks before. At these meetings, Dr. Wooding will work closely with you to develop a feasible and rewarding project for your time in the Amazon.

D. Primary Research Proposal

Using your notes, resources, and ideas from discussions with instructors and others, prepare a proposal describing your planned project. Detailed guidelines for organization and content are provided in the *Assignment Instructions* packet. In brief, explain the factual background and observations that interest you, their relevance to residents of the rainforest frontier, the questions you will be asking, and your step-by-step approach to answering them. Note that although projects must conform to academic norms of accuracy and rigor, creativity is encouraged and multidisciplinary approaches are welcomed. In addition to writing the proposal, anticipate discussing it at a group meeting on the first day of the course in a session centered on sharing ideas and refining objectives.

E. Expectations Travel Assignment

While you are in the air on your flight to Lima, Perú, take 15-30 minutes to write about your expectations, anticipations, and even your apprehensions about your upcoming trip. You may write in your journal or on your laptop. Be prepared to share some of these expectations during the first days the group is in Iquitos, Perú. We will ask you to turn in this assignment in the first days of the course. Later on, if you wish to add an addendum to your "expectations" writings, you are invited to do so.

II. Journal Keeping

You must keep a journal throughout the course. It may be kept by hand in a notebook or electronically (on laptop) according to your preference. Entries should informally recount both research progress and thoughts about work and travel. The goal of the journal is to serve as a personal record of your time in Perú, so the format and content are up to you. Some example entries are included in the *Assignment Instructions* packet. Dr. Wooding will spot-check your journal from time to time to learn about your progress.

III. Research and Group Participation

As an intensive course, this session requires full-time participation in both individual research and group work throughout. Plan to dedicate your time to the activities and hours detailed below in Section XI, which are required for all students. Days are not intended to be grueling, but they are typically fully occupied by a combination of work on research projects, group activities, travel, and free time.

IV. Final Presentation

Near the end of the course, as your research work comes to a close, you will make a final presentation to the group. Here, you will discuss the observations that first motivated your

research, your question, your methods of investigation, your findings, and the implications of your results for public health improvements in the Iquitos region. It is recognized that the projects in this course are diverse, particularly with multidisciplinary studies, and considerable leeway in presentation content will be organized through consultation with Dr. Wooding. As described in *Assignment Instructions*, the presentation will be 10 minutes in length, during which you will show PowerPoint slides illustrating your work, explain it, and answer questions from Dr. Wooding and the group.

XI. Schedule

The trip schedule below details required time commitments and activities. The remaining hours can be used according to your preference. Note that the active nature of the course may require occasional changes.

Day 1: Arrive in Iquitos

You should arrive in Iquitos, Perú by this date, by mid-afternoon at the latest. There are few international flights to Iquitos, and most participants will need to fly via Lima, Perú. Many flights between the US and Lima are overnight flights, so the majority of participants will need to depart the US on Dec. 31. Please be sure to leave ample time between connecting flights to allow for weather delays. Refer to the "Getting There" document in your information package for details on flights to Perú, navigating airports, contact information, and how to get to Hostal El Colibrí (our hotel) once you arrive in Iquitos.

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| 5:00 - 5:30P | Meet in lobby of Hostal El Colibrí for informal introductions and a brief safety orientation. |
| 5:30 - 7:00P | Walk to the nearby Restaurante Fitzcarraldo for hors d'oeuvres and refreshments. |
| 7:00 - 7:15P | Discuss schedule and a writing assignment for the following day. |
- Next-Day Assignment - First Impressions Essay (to be described by Dr. Wooding)

Day 2: Iquitos

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|---------------|---|
| 7:00 - 8:00A | Breakfast at El Colibrí* |
| 8:00 - 8:30A | Discussion of First Impressions assignment |
| 8:30 - 9:00A | Instructions and division of students into City as Text (CAT) exploration groups to visit one of the following potential destinations: <ul style="list-style-type: none">- Bellavista Nanay- Belen Marketplace- San Juan Plaza- Punchana Plaza- Puerto de Productores- Puerto Masuza |
| 9:00A - 1:30P | CAT Explorations |
| 1:30 - 2:30P | Return to El Colibrí, write up observations for group CAT presentations |
| 2:30 - 4:30P | Presentations by groups (15 minutes maximum per group) |
| 4:30 - 5:00P | Wrap-up of the day's activities, overview of agenda for following day |
| 6:30P | Dinner at El Mesón restaurant, on the riverfront* |

City as Text Instructions - Students will be divided into groups of 3 or 4. Each group will combine participants from different disciplines and preferably have at least one Spanish speaker. A map of Iquitos showing the different areas, and the location of the hostel, will be given to each student along with a handout discussing CAT methodologies. Students will eat lunch in or near their assigned areas and will need a small amount of cash for transportation, food, and other small purchases. Students are encouraged to take cameras to “photo-document” their assigned areas.

Next-Day Readings - Hemming (2011) Chapter 1, Mann (2005)

Next-Day Listening - Charles (2011), Graber and Mirsky (2015)

* Except where specifically noted, this will be the daily breakfast and dinner schedule for the duration in Iquitos. Breakfast will be at El Colibrí at 7:00A and dinner will follow the last scheduled activity for the day at El Mesón between 6:00P and 6:30P. Unless otherwise specifically noted, lunches will be on your own in whatever part of town you might be visiting. There are many options.

Day 3: Iquitos

8:00 - 8:30A Division of students into the second CAT exploration groups, with each person visiting a location contrasting with the previous day (destination options are same as previous day), and with different group members.

8:30A - 1:00P CAT exploration, with students having lunch on location

1:00 - 3:30P Preparation of CAT group reports

4:00 - 4:30P CAT group presentations and discussions

4:30 - 5:00P Discussion of previous day's reading and listening

Next-Day Assignment - Revise Project Proposals - Revisions should reflect the experiences that students have now had, along with any resources they have discovered in the first two days of exploring the city.

Next-Day Reading - Gorman (2015)

Day 4: Iquitos

7:00 - 8:00A Breakfast at El Colibrí

8:00 - 10:00A Discussion of research techniques and methodologies, as well as ethical considerations in conducting research

10:00A - 4:00P Personal research projects and exploration (guides and translators will be available)

4:00 - 4:30P Feedback on revised project proposals with Dr. Wooding, and wrap-up of the day's research activity

4:30 - 5:00P Discussion of previous day's reading

5:00 - 6:30P Video: *The Mega Cities in the Mighty Amazon River* (1hr36min)

Day 5: Iquitos

7:00 - 8:00A Breakfast at El Colibrí

8:00 - 4:30P Personal research projects and exploration (guides and translators will be available)

- 4:30 - 5:00P Discussion of previous day's reading
- 5:00 - 6:30P Student presentations on research progress and early findings
- Next-Day Assignment – Expectations for Madre Selva Biological Station - As in your first Expectations assignment, written en route to Perú, prepare a piece about your expectations, anticipations, and apprehensions.

Day 6: Travel from Iquitos to Madre Selva Biological Station via Amazon River

- 8:00 - 10:00A Morning free for work on research projects
- 10:00A Meet at El Colibrí with gear packed, ready to transfer to port facilities
- 11:00A Departure from Iquitos aboard boat bound for the Madre Selva Biological Station
- 12:30P Visit traditional rum distillery and nearby town
- 5:00P Arrival at Madre Selva Biological Station
- 5:00 - 6:00P Field station orientation and rainforest nature walk
- 7:00P Dinner at field station
- 10:30P Electrical power off*
- Next-Day Readings - Olson et al. (2009)

* Electrical power at Madre Selva is provided by generator, which is turned off each night at this time unless otherwise arranged.

Day 7: Madre Selva

- 7:00A Breakfast
- 8:30 - 9:00A Select readings of Expectations assignment
- 9:30 - 12:30P Visit to local Yagua (Comandancia) and mestizo communities (Santo Tomás and Nueva Israel) by boat
- 1:00P Lunch at Madre Selva
- 3:00 - 5:00P Work on personal research projects at field station or local communities*
- 6:30 - 7:00P Discussion of previous day's reading
- 7:00P Dinner at field station
- 7:30 - 8:30P Dr. Wooding's presentation on pre-history and human influence in the Amazon
- 9:00P-10:00P Moonlight boat excursion to see nocturnal wildlife (birds, frogs, and caimans)

Next-Day Reading - Emperaire (2014)

Next-Day Assignment - *First Impressions Writing* - Follow the same instructions as for *First Impressions Writing* assignment in Iquitos.

*Boat transportation to and from local communities will be available throughout your time at Madre Selva

Day 8: Madre Selva

- 7:00A Breakfast
- 9:30 - 1:00P Personal research projects and exploration
- 1:00P Lunch

3:00 - 5:00P	Personal research projects and exploration (as from 9:30A - 1:00P)
6:00 - 6:30P	Discussion of Rural Livelihoods, Community Life and Making a Living
6:30 - 7:00P	Discussion of previous day's reading
7:00P	Dinner

Day 9: Madre Selva

8:00A	Breakfast
9:00 - 1:00P	Personal research projects and exploration
1:00P	Lunch
2:00 - 6:30P	Personal research projects and exploration
6:30 - 7:00P	Discussion of previous day's reading.
7:00P	Dinner
7:30 - 8:30P	Discussion of environmental changes in the Amazon
Next-Day Reading - Alexiades (1996), UNICEF (2009)	

Day 10: Madre Selva

7:00A	Breakfast
8:00 - 9:00A	Select readings of Madre Selva First Impressions assignment
9:30 - 10:30A	Personal research projects and exploration
10:30A - 12:30P	Visit to larger regional community (Yanashi)
1:00P	Lunch
3:00 - 5:00P	Personal research projects and exploration
6:00 - 6:30P	Discussion of rural livelihoods and community life
6:30 - 7:00P	Discussion of previous day's reading
7:00P	Dinner

Day 11: Travel from Madre Selva to Iquitos via Amazon River

7:00A	Breakfast
8:00A	Departure from Madre Selva on boat bound for Iquitos
12:00P	Visit to special site en route to Iquitos
2:00P	Arrive in Iquitos and transfer to El Colibrí
2:30 - 6:30P	Afternoon and evening free for research and writing
6:30P	Dinner

Day 12: Iquitos

7:00A	Breakfast at El Colibrí
8:00 - 12:00P	Personal research projects and exploration
12:30P	Lunch in town (on your own)
2:00 - 6:00P	Personal research projects and exploration
6:30P	Dinner

Day 13: Iquitos

7:00A	Breakfast at El Colibrí
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8:00A - 12:00P	Individual writing and presentation preparation
12:30P	Lunch in town (on your own)
2:00 - 6:00P	Individual writing and presentation preparation
6:30P	Dinner

Day 14: Iquitos

This is the last official day of the course and ends at 5P. From that point forward students are free to depart onward to Lima and the US or other destinations.

7:00 - 8:00A	Breakfast at restaurant on the Plaza de Armas
9:00A - 12:00P	Final individual presentations and discussion
12:30 - 3:30P	End of course lunch and awards ceremony at El Mesón
5:00P	All pending assignments due in final format. Please note that assignments will not be accepted after the course officially ends.

XII. Additional Readings and Resources

Agriculture

- Ban, N, Coomes, OT (2004). "Home gardens in Amazonian Perú: Diversity and exchange of planting material." *Geographical Review* 94:348-367.
- Cattaneo, A (2002). *Balancing Agricultural Development and Deforestation in the Brazilian Amazon*. Washington, International Food Policy Research Institute.
- Chibnik, M (1994). *Risky Rivers: The Economics and Politics of Floodplain Farming in Amazonia*. Tucson, University of Arizona Press.
- Emperaire, L, Eloy, L (2014). Amerindian agriculture in an urbanizing Amazonia (Rio Negro, Brazil). *Bulletin of Latin American Research* 34:70-84.
- Hemming, J (2009). *Tree of Rivers: The Story of the Amazon*. London, Thames & Hudson: 389-324.
- Wallace, S (2007). *Farming the Amazon*. National Geographic Magazine.
<http://environment.nationalgeographic.com/environment/habitats/last-of-amazon>
- Sherman M, Ford, J, Llanos-Cuentas, A, Valdivia, MJ, Bussalleu, A, Indigenous Health Adaptation to Climate Change (IHACC) Research Group (2015). Vulnerability and adaptive capacity of community food systems in the Peruvian Amazon: a case study from Panaillo. *Natural Hazards* 77:2049-2079.
- Emperaire, L, Eloy, L (2014). Amerindian agriculture in an urbanizing Amazonia (Rio Negro, Brazil). *Bulletin of Latin American Research* 34:70-84.
- Sierra, R (2015). Food production systems in the Amazon. In *Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures*.
- Lamont, SR, Eshbaugh, WH, Greenberg, AM (1999). Species composition, diversity, and use of homegardens among three Amazonian villages. *Economic Botany* 53:312-326.

Climate Change

- Bush, MB, Fenley, JR, Gosling, WD (Eds.). *Tropical Rainforest Responses to Climatic Change*. 2nd Ed. Springer, Berlin Heidelberg.
- Davidson EA, de Araújo AC, Artaxo P, Balch JK, Brown IF, C Bustamante MM, Coe MT, DeFries RS, Keller M, Longo M, Munger JW, Schroeder W, Soares-Filho BS, Souza CM Jr, Wofsy SC. (2012). The Amazon Basin in transition. *Nature* 481:321-328.

Kronik, J, Verner, D (2010). *Indigenous Peoples and Climate Change in Latin America and the Caribbean*. Washington, The World Bank.

Sherman, M, Ford, J, Llanos-Cuentas, A, Valdivia, MJ, Bussalleu, A, Indigenous Health Adaptation to Climate Change (IHACC) Research Group (2015). Vulnerability and adaptive capacity of community food systems in the Peruvian Amazon: a case study from Panaillo. *Natural Hazards* 77:2049-2079.

Unicef (2009). *Climate Change and Children in the Brazilian Amazon Region*.

Wade, L (2015). Global warming is already clobbering the Amazon. *Wired Magazine*
<http://www.wired.com/2015/04/global-warming-already-clobbering-amazon>

Ecology and Environment

Kricher, JC (1999). *A Neotropical Companion: An Introduction to the Animals, Plants, and Ecosystems of the New World Tropics*. Princeton University Press, Princeton, NJ.

Goulding, M (1993). Flooded forests of the Amazon. *Scientific American* 268: 114.

Graber, C, Mirsky, S (2015). Humans and the Amazon: A 13,000-Year Coexistence (Podcast). *Scientific American*
<http://www.scientificamerican.com/podcast/episode/humans-and-the-amazon-a-13-000-year-coexistence/>

National Geographic (1997). *Manu: Perú's Hidden Rainforest*. (Video)
https://www.youtube.com/watch?v=3_jt2PghjTM

Travel Planet (2015). *The Mega Cities in the Mighty Amazon River - Belem and Manaus* (Video) <https://www.youtube.com/watch?v=hIVzVG393ik>

Environmental Change

Adams, C, Murrieta, RSS, Neves, WA, Harris, M (Eds.) (2008). *Peasant Societies in a Changing Environment: Political Ecology, Invisibility and Modernity in the Rainforest*. New York, Springer.

Andersen, LE, Granger, CWJ, Reis, EJ, Weinhold, D, Wunder, S (2002). *The Dynamics of Deforestation and Economic Growth in the Brazilian Amazon*. Cambridge University Press, Cambridge, UK.

Barras, C (2015). Fires shape the Amazon savannah. *New Scientist* 3028:9.

Fraser, B (2014). Oil spill in Amazon sickens villagers, kills fish. *Scientific American*
<http://www.scientificamerican.com/article/oil-spill-in-amazon-sickens-villagers-kills-fish/>

Fraser, B (2011) Peruvian gold comes with mercury health risks. *Scientific American*
<http://www.scientificamerican.com/article/Peruvian-gold-health-risks/>

Lambin, EF, Turner, BL *et al.* (2001). The causes of land-use and land-cover change: Moving beyond the myths. *Global Environmental Change* 11:261-269.

Unruh, JD, Krol, MS, Klot, N (Eds.) (2004). *Environmental Change and its Implications for Population Migration*. Dordrecht, The Netherlands.

Health Care

Cotlear, D (Ed.) (2006). *A New Social Contract for Perú: An Agenda for Improving Education, Health Care, and the Social Safety Net*. World Bank.

Demaio, A (2014). A Peruvian Story of Cancer, and Health. *PLoS Blogs*
<http://blogs.plos.org/globalhealth/2014/06/Peruvian-story-cancer-health/>

Fraser, B (2006). Providing medical care in the Peruvian Amazon. *The Lancet* 368:1409.

- Huicho L, Dávila M, Campos M, Drasbek C, Bryce J, Victora CG. (2005). Scaling up integrated management of childhood illness to the national level: achievements and challenges in Perú. *Health Policy and Planning* 20:14-24.
- Pultarova, T (2014). Telemedicine to cut infant death in the Amazon. *Engineering and Technology Magazine* <http://eandt.theiet.org/news/2014/may/amazon-telemedicine-infant-death.cfm>
- Soto G, Araujo-Castillo RV, Neyra J, Fernandez M, Leturia C, Mundaca CC, Blazes DL. (2008). Challenges in the implementation of an electronic surveillance system in a resource-limited setting: Alerta, in Perú. *BioMedCentral Proceedings* 14 Suppl 3:S4
- Wootton, R, Patil, NG, Scott, RE, Ho, K (Eds.) (2009). *Telehealth in the Developing World*. The Royal Society of Medicine Press, London.
- Walraven, G. (2011). *Health and Poverty: Global Health Problems and Solutions*. Earthscan, Washington, DC.
- Werner, D., Thuman, C., Maxwell, J. (2013). *Where There is No Doctor: A Village Health Care Handbook*. Hesperian Health Guides, Berkeley.

History and Culture

- Balee, W (2013). *Cultural Forests of the Amazon: A Historical Ecology of People and their Landscapes*. The University of Alabama Press, Tuscaloosa.
- Chagnon, N (2012). *The Yanomamo (Case Studies in Cultural Anthropology)*. Wadsworth, Belmont, CA.
- Chibnik, M (1994). *Risky Rivers: The Economics and Politics of Floodplain Farming in Amazonia*. Tucson, University of Arizona Press.
- Holmberg, AF (1985). *Nomads of the Long Bow: The Siriono of Eastern Bolivia*. Waveland Press, Long Grove, IL.
- Mann, CC (2005). *1491: New Revelations of the Americas before Columbus*. New York, Alfred A. Knopf.

Infectious Disease

- Beaubien, J (2015). *She's Got One Of The Toughest Diseases To Cure. And She's Hopeful*. National Public Radio Broadcast
<http://www.npr.org/sections/goatsandsoda/2015/05/20/403277707/shes-got-one-of-the-toughest-diseases-to-cure-and-shes-hopeful>
- Beaubien, J (2015). They're Going Door To Door In The Amazon To See Why People Get Sick. National Public Radio Broadcast
<http://www.npr.org/sections/goatsandsoda/2015/05/19/401970884/theyre-going-door-to-door-in-the-amazon-to-see-why-people-get-sick>
- Charles, D (2011). *In Heart Of Amazon, A Natural Lab To Study Diseases*. National Public Radio <http://www.npr.org/2011/06/09/137062165/in-heart-of-amazon-a-natural-lab-to-study-diseases>
- Chowell G, Cazelles B, Broutin H, Munayco CV (2011). The influence of geographic and climate factors on the timing of dengue epidemics in Perú, 1994-2008. *BioMedCentral Infectious Disease* PMID: 21651779
- Ford CM, Bayer AM, Gilman RH, Onifade D, Acosta C, Cabrera L, Vidal C, Evans CA (2009). Factors associated with delayed tuberculosis test-seeking behavior in the Peruvian Amazon. *American Journal of Tropical Medicine and Hygiene* 81:1097-1102.

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