

Environmental Research in Asia (Japan)

Asian Studies/Environmental Studies 396

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Why go to Japan to do environmental science research?

Environmental problems present high degrees of complexity, immense scale, and a (false) hope that technology will provide timely solutions. Instead of looking at the issues in their enormity, we can gain insights into positive change by taking a closer look at place. By conducting research at the [Asian Rural Institute](#) (ARI) in Nasu-Shiobara, Japan, a new place with a different cultural frame, we stand to discover unexamined assumptions about a given place or system, recognize the cultural dimension nested within scientific work, and see patterns emerge around responses to major disturbances and environmental challenges.

Prerequisites

Open to Juniors and Seniors with any one of the following courses: ES 245, 255, or 281/381 (natural science focus); BI/ES 226, 228, 286, 350; Biology 226, 261; Chemistry 255. All others by permission of instructor. You are encouraged to consider learning some survival Japanese language prior to departure. Course serves as Natural Science elective in the ES Natural Science Major (Category 7) or for the experiential component in both the ES Major and Concentration.

Course goals

You will be introduced to collaborative environmental science research involving a community partner. Through project design and execution one can discover how landscapes and institutions recover from a major disturbance. We will learn and practice what it means to do scientific work with a community partner, and how that work interlaces with their aims and objectives. In addition we will ask about the ways in which the cultural context influences scientific inquiry and the communication of scientific work.

Where will we go? What will we do?

Situated 140 km north of Tokyo (36.8945°N, 140.003°E) in the largest open plain of the Kanto region, ARI continues a 40+ year practice of rural leadership training and sustainable agriculture through integrated organic farming techniques, community building, and servant leadership. ARI expresses its Christian values by striving to “build an environmentally healthy, just, and peaceful world in which each person can live to his or her fullest potential.” The March 2011 Honshu earthquake, followed by the tsunami and nuclear disaster at Fukushima Daiichi (100 km ENE), set the stage for reassessment of environmental stewardship across Japan and brought challenges to many places, including ARI.

We will take advantage of ARI’s January off-season to use their classroom and group residences. You will meet and learn from their staff and long-term volunteers during shared discussions and research projects. The farm operates as an integrated community; each day we will join in the [Foodlife](#) practices that make ARI function. Our goal is to study aspects of the farm through scientific inquiry and to make recommendations about ARI’s path of continued recovery and resilience. We will have 90 minute class sessions two to three days a week, and recurring project consultation sessions to begin and end each day. We will conduct small group projects consisting of field work, lab work where applicable, data collection, analysis, and presentations interlaced with opportunities to develop cross-cultural awareness.



Rebuilt residences at ARI with integrated solar-thermal.



Vegetable fields at ARI



We will have three to four excursions (some joint with ASES 277) that introduce you to different terrestrial ecosystems in Honshu and highlight contemporary environmental issues in Japan. These will include a visit to the nearby [Nikko National Park](#), the Ashio Copper Mine, Watarase River, and possibly a visit to a 3 MW Solar Array or to recovery zones in Fukushima Prefecture.

As part of the cultural and ecosystem exploration we will spend some nights away from ARI. The group will begin our learning with two days in Tokyo, so that you can appreciate the urban environment in which two-thirds of the Japanese population lives. Two additional nights will be spent in a rural intermountain village in Nagano Prefecture where we will interact with Japanese university students and their professors who are pursuing innovative community projects related to community development/redevelopment, habitat rehabilitation, and water quality improvements. You will have one free weekend to travel wherever you wish (some additional expense is likely).

How will I be graded?

Four types of activities comprise your course grade (each ~25%): Participation in Foodlife, research, field trips, class discussions, and workshop/excursions with Japanese and ASES 277 students; Project proposal and pitch; Scientific & reflective journal with daily entries and responses to periodic prompts; and the Research project results and deliverables.

Readings

Excerpts from selected texts and articles from the peer-reviewed primary literature will form our shared readings.

Barker, Allen V. *Science and Technology of Organic Farming*, CRC Press: Boca Raton, FL, 2010.

Miller, I. J.; Thomas, J. A.; Walker, B. L., *Japan at nature's edge: the environmental context of a global power*. University of Hawai'i Press: Honolulu, HI, 2013.

Japan Satoyama Satoumi Assessment, 2010. *Satoyama-Satoumi Ecosystems and Human Well-being: Socio-ecological Production Landscapes of Japan – Summary for Decision Makers*. United Nations University, Tokyo, Japan.

Kawamoto, S.; Nakayama, M.; Saijo, M., A survey of scientific literacy to provide a foundation for designing science communication in Japan. *Public Understanding of Science* **2013**, 22(6), 674-690.

Hoekstra, A. Y.; Wiedmann, T. O., Humanity's unsustainable environmental footprint. *Science* **2014**, 344(6188), 1114-1117.

Asian Rural Institute, Annual reports, other background materials and basic data regarding the integrated organic farm.



Biotope construction in paddy field at ARI



Washi paper making at Nagawamachi, Nagano Prefecture



Gates to the Meiji Jingu shrine in Tokyo