Mālama I Ka 'Āina, Sustainability
EDCS 433 Interdisciplinary Science Curriculum (3 Cr)
&/or EDCS 450 Materials & Methods (3 Cr)
Islands of Hawai‘i & O‘ahu

Schedule and Sites:

- **O‘ahu orientation**: June 3, 2011, 9 a.m.-12 p.m., UHS 1-107.
- **Hawai‘i Island**: M-F June 6-10: Travel, meals, lodging at KMC & HPA provided
- **O‘ahu:** June 17-18, 24-25, July 1-2, Oct. 7-8, March 16-17, 2012, UHS 1-107 or other site.

Preregister: chinn@hawaii.edu (Name, school, grade/subject, why you are enrolling)
Enroll: Tuition provided by Kūlia I Ka Nu‘u, an award funded by Native Hawaiian Education Act.

- Pay Outreach College Administrative Fee of $175 per class when you enroll.
- Stipends (June/October/March) vary based on travel to course activities.

Instructors: Pauline Chinn, Huihui Kanahele-Mossman. Michelle Kapana-Baird, Matt Kanemoto, Alyson Barrows, Sabra Kauka, Manuel Jadulang, Mahina Hou Ross, Kellie Kong.

Texts and Videos:

Pikoi Ke Kaula Kualena: http://manoa.hawaii.edu/coe/kulia/publications/pikoi.html#)
Videotapes: Ahupua‘a, Fishponds, Lo‘i; Taking of Waikiki; *Na Pua O Maunalua*
Text/Readings: I. A. Abbott, La‘au Hawai‘i: Traditional Hawaiian Uses of Plants, provided

Course Goals: Hawaiian practices, sayings, chants, and stories are sources for science learning. The saying *Hahai no ka ua i ka ululā‘au*; Rains always follow the forest (Pukui, 1983) recognizes that mists condense on trees and enter the groundwater. Thus Hawaiians protected forests that preserved the watershed. We apply curriculum-mapping strategies to write, teach, and assess hands-on, standards-based lessons connected to students’ cultures, places, and issues. Our goal is to increase student engagement, interest, and success in science. We plan to collaborate with the Polynesian Voyaging Society on lessons oriented to sustainability.

Course Objectives: EDCS 433 and 450 will enable you to:

1. Use course activities to write, teach, and assess Hawaii-focused, inquiry lessons.
2. Connect real issues to lessons oriented to sustainable communities and ecosystems.
3. Include community in lessons that are rigorous, relevant, build relationships and responsibility.

Instructional Procedures: Field, laboratory, technology, school and community-based activities; individual and group work; guest and peer presentations; visits to cultural sites.

COMMON CORE FOR EDCS 433 AND 450: THINK/WRITES AND FIELD REPORTS

20 POINTS: THINK/WRITES
T/Ws support curriculum design, research, reflection, sharing of ideas. T/W 1-8, 2 points each, T/W 9, 4 points, 1-2 pages.

Post T/Ws on class social networking site, respond to 2 peers. T/W 1-2 due June 18; T/W 3-4 due June 25; T/W 5-6 due October 8; T/W 7-8, due March 17, T/W 9 due April 20, 2012.

1. **Engage**: When/what first interested me in science? Write your autobiography related to science interests and education. OR Interview a student about his/her science interests (Young children may not be familiar with the word science. You’ll have interesting responses.) (June 18)

2. **Explore**: Critical problems with science education and possible solutions? OR Interview a student or parent about these issues and how they would like to learn. (June 18)
3. **Explore**: Discuss culture as resource then write a lesson sketch relevant to you or students.(June 25)
4. **Explore**: Discuss a health issue in your students' lives, write a lesson sketch. (June 25)
5. **Evaluate**: At this point, support in this area would help me carry out my objectives. (October 8)
6. **Explain**: What evidence if any do I have that culture and place-based learning supports engagement and learning, especially of students most at risk of failure? (October 8)
7. **Evaluate**: What aspects of place-based education were most helpful for my teaching? (March 17)
8. **Evaluate**: How did your network of human resources (parents, scientists, colleagues, agencies, etc.) change as a result of course activities? (March 17)
9. **Overall Evaluation**: What were most useful aspects of the class? Your suggestions for improvement? (April 20)

20 POINTS: LABORATORY/FIELD REPORTS

Report framework will be provided. (5 pp, references, 10 pts ea.)

1. Stream Transect/Water Quality Study (July 2)
2. Native and Invasive Species Report: Class field site OR your community site (October 8)

COURSE REQUIREMENTS EDCS 433

20 Pts. Paper 1. Ahupua'a and Cultural Landscape including interview (3+ references, 5+ pp.) Identify your/your school's ahupua'a and locate it on a map. What are Hawaiian place names, legends and history? How has it changed from pre-contact to present? Interview a long time resident. (Present June 25)

20 Pts. Paper 2. Local Resources and Place-based Curriculum Development. (3+ references, 5+ pp.) Describe your community, school, student demographics, and NCLB status to set the context. Then identify 3 people, places, issues, or activities in your school or community that could be developed into meaningful, standards-based, science lessons. From the 3 resources, write 2 lesson sketches using the Kulia lesson template with potential to be developed into Paper 3. Place/culture/inquiry-based lesson plan for classroom implementation. (Present July 2)

30 Pts. Paper 3. Place/culture/inquiry-based Lesson Plan. Science is a cultural activity, stories and concrete activities help students learn and understand (2+ references, 5+ pp.)

- Part 1. Present LP with hands-on component Oct. 8.
- Part 2. Present student outcomes, learning (pre/post, student reflections, KWL), your evaluation of what worked, what could be improved (March 17, 2012).
- Part 3. Final lesson plan to post on website with teacher and student evaluation. (April 20, 2012).

EDCS 433 TOTAL POINTS: 110

COURSE REQUIREMENTS EDCS 450

20 Pts. Paper 1. Field Trip Lesson Plan: Culture, place, and inquiry oriented (2+ references, 5 pp.) (Present July 2)

30 Pts. Paper 2. Culturally relevant, Experimental Lesson Plan: hypothesis, variables, controls, data collection, analysis, discussion, conclusion (2+ references, 5 pp.)

- Part 1. Present LP with hands-on component Oct. 8.

- Part 2. Present student outcomes, learning (pre/post, student reflections, KWL), your evaluation of what worked, what could be improved (March 17, 2012).
- Part 3. Final lesson plan to post on website with teacher and student evaluation. (April 20, 2012).

20 Pts. Paper 3. Individual or group Inquiry: Use science report format. See ideas below or develop one useful in your teaching. (Present your topic June 25, present findings March 17)

- Identification and adaptations of 10 weedy/invasive plants in your neighborhood. Extend field activity above-contrast to endemic or canoe plant family. Make a mini-field guide.
- What will grow from 1/2 cup of dirt (2 cm deep, no herbicides)?
- What's in my garden? Study, record, analyze a mini-ecosystem for 7 days/nights, identify patterns, develop a local food web.
- Identification, origin, behavior, impact if any on local ecosystem and native fauna of 10 birds, insects or other animals in your community. Make a mini-field guide.
- Identification, origin, risks from poisonous plants in your neighborhood (Make a mini-field guide)
- Water cycle and stream study from headwater to ocean. Compare natural to channelized streams, compare vegetation and animals, temperatures, water quality, other variables.
- Coastal study in your neighborhood.

EDCS 450 TOTAL POINTS: 110

Grading Policy: A = 100-90%, B = 89-80%, C = 79-70%, D = 69-60%

Attendance policy: Absence(s) require make-up activity such as participating in/writing up a community-based project; please discuss with instructor. Active participation is an integral part of the course.

Office Hours: By appointment.

JUNE 2011-APRIL 2012 EDCS 433/450 SCHEDULE

Notes:

- Schedule may change based on weather and other events.
- **To arrange other meetings on O'ahu or Neighbor Islands** contact Kūlia team member or Pauline at chinn@hawaii.edu.
- 100 hours both courses, 50 hours for EDCS 433 or 450 credit course, 2 lecture, 1 lab.
- Accommodations can be made for outdoor activities.

June 3 **O'AHU: UHS 1-107 Orientation for participants on O'ahu**

June 6-10 **Hawai'i Island Immersion (Final schedule in progress)**
Monday morning: Hilo Airport, Pacific Basin Agricultural Research Center
Mon., Kilauea Military Camp: Volcanoes National Park
Tues., Kilauea Military Camp: Biorestoration
Wed. Hawaii Preparatory Academy: 'Imiloa, Keaukaha PCS
Thurs., Hawaii Preparatory Academy: Kohala outplanting, Puanui Field System
Fri., Honoka'a HS: Sustainable agriculture, school gardens

June 17-18 **O'AHU: UHS 1-107**
Share lessons assignments

Field activity TBD: Maunalua Bay or Kahuku's Koko 'Ula Learning
Kellie: ETEC

June 24-25 **O'AHU: TEACHERS UHS 1-107**
Share lessons assignments
Field activity TBD: Bishop Museum or Polynesian Voyaging
Kellie: ETEC

July 2-3 **ALL PARTICIPANTS:** Austronesian 'Ohana: Hawai'i-Taiwan/China
UHS 1-107, 8:30 a.m.-5:00 p.m. Working lunch
Lesson share (detailed agenda to follow)
Field activity TBD: Bishop Museum or Polynesian Voyaging

Oct. 7-8 **ALL PARTICIPANTS:** Overnight TBD *Moku o lo'e* (HIMB) or Punalu'u Hale
Lesson share

March 16-17 **ALL PARTICIPANTS: Overnight TBD**
FINAL REPORTS

April 27, 2012 **LAST DAY TO SUBMIT ALL 433/450 ASSIGNMENTS**

May 6, 2012 **GRADES DUE TO OUTREACH COLLEGE**

Selected course readings on the worldwide web:

1. "An Overview of the Hawaiian Cultural Landscape" (2001) prepared by Kepā Maly
2. "Traditions of O'ahu, Stories of an Ancient Island," by districts (mahalo Dennis Kawaharada) http://apdl.kcc.hawaii.edu/~oahu/stories/winds.htm
3. "The Kona Field System" http://www.bishopmuseum.org/exhibits/greenwell/kona.html.
4. "Development and Human Activity on the West Coast of the Island of Hawaii" http://www.cr.nps.gov/history/online_books/kona/history6b.htm.
5. "Protecting Hawaii from Invasive Species" pdf
6. "Evolution in Hawaii: A Supplement to Teaching about Evolution and the Nature of Science" http://www.nap.edu/catalog.php?record_id=10865
7. "An Inquiry Primer," Alan Colburn, 2001.
8. "5E Model of Instruction" (several)
9. "Communities of Practice, a Brief Introduction" http://www.ewenger.com/theory/
10. "Pacific Islanders' Ancestry Emerges in Genetic Study" http://www.nytimes.com/2008/01/18/world/asia/18islands.html
11. "What is Place-based Education?" http://www.promiseofplace.org/what_is_pbe
12. "Best of Both Worlds, a Critical Pedagogy of Place" D. Gruenewald, 2003.

FAQs

1. Teachers (EA, kupuna, substitute, PTT) may enroll for credit and stipend
2. If you receive more than $600 in stipends in a calendar year income is reportable if you are NOT in a degree program.
3. Enroll for A-F grade to apply credits to a current or future degree program.
4. Enter a degree program within 7 years to include credits towards a degree.

***Kūlia I Ka Nu'u* website: http://manoa.hawaii.edu/coe/kulia/**

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