

GEOG 122: Geography of Hawai'i

Reading Objectives

Introduction/Reference Maps/Mapping & Geodesy (Weeks 1-2)

1. **Location:** Find other geographic features (cities, countries, islands, mountains, rivers, etc.) which are located at the same general latitude as Hawai'i.
2. **Maps:** How many large islands are there in Hawai'i? Name them in the order of their size, the largest to the smallest.
3. **History:** Describe the physical difference between the Northwestern Hawaiian Islands and the 8 major Hawaiian Islands. Why they are different
4. **Geodesy:** What is NAD83?

PART 1: The Physical Environment

Week 3: Geology/Water (pp. 37-48; 87-91)

1. **Geology:** Describe the evolution of a Hawaiian volcano.
2. **Plate tectonics:** List and explain two geological phenomena to which Hawaiian Islands owe their existence.
3. **Volcanoes:** List and describe the five volcanoes on the Island of Hawai'i.
4. **Freshwater:** Describe the two ways groundwater occurs in Hawai'i.

Week 4: Climate/Hurricanes (pp. 49-66; 74-75; 87-91)

1. **Climate:** Why Hawai'i's climate is equable?
2. **Trades:** Describe the Hadley Cell.
3. **Orographic rain:** Why on the Kona Coast of Hawai'i Island, a unique summer maximum rainfall pattern occurs?

4. **Hurricane:** Why hurricanes are rather rare in Hawai'i? (mind boggler—that is, may not be answered in the textbook)

Week 5: The Ocean/Tsunamis (pp. 76-78; 82-86)

1. **Profiles:** Compare and contrast the average vertical profiles of temperature, salinity, and nutrients of the Hawaiian ocean.
2. **Waves:** Why do you go to the North Shore to surf in winter?
3. **Tsunami:** Does the ocean always recede before a tsunami strikes? (Mind boggler)

Week 6: Natural Hazards/Earthquakes/Volcanic Hazards /Coastal Hazards (pp. 67-73; 79-81)

1. **Earthquakes:** What is logarithmic?
2. **Volcanic hazards:** Assess the danger level to live in the Lava Flow Hazard Zone 3 on the Island of Hawai'i.

PART 2: The Biotic Environment

Week 7: Biogeography/Evolution/Marine Ecosystems/Terrestrial Ecosystems (pp. 103-129)

1. **Biogeography:** Describe physical & biological differences between "continental" and "oceanic" islands.
2. **Dispersal:** List and explain three modes of long-distance dispersal available to potential colonizers of Hawaiian Islands.
3. **Evolution:** Describe a common evolutionary pattern in Hawai'i. Give two examples.

Week 8: Native Plants (pp. 135-139)

1. **Disharmonic flora:** Describe Hawai'i's "disharmonic" flora. Why is it disharmonic?
2. **Endemic, indigenous and introduced:** Compare and contrast among these species. Give some examples.

Week 9: Birds/Insects/Hawaiian Tree Snails (pp. 130-34; 140-145)

1. **Adaptive radiation** (explanation on P. 139): Describe the variation in color and bill shape among Hawaiian honeycreepers. Why?
2. **Carnivorous (predatory) caterpillar**: Why is it advantageous to be carnivorous? (mind boggler)
3. **Cave insects**: Describe characteristics of cave adopted insects.
4. **Tree snail**: Why are they gone now?

Week 10: Introduced Species/Endangered and Threatened Species/Protected Areas (pp. 150-157)

1. **Introduced species**: List two introduced plants/animals which are beneficial to human. What are their impacts on the Hawaiian environments?
2. **Invasive species**: List two introduced plants/animals which are invasive and/or harmful to the Hawaiian environments. What are their impacts?
3. **Endangered species**: Why many of Hawaiian plants and animals are in grave danger of extinction? What should/should not we do? Why?

Week 11: Ethnobotany (not covered in the textbook)

1. **Food plants**: List two food plants which were brought by early Polynesian settlers. How are they cultivated? How are they consumed?
2. **Medicinal plants**: List two medicinal plants which were brought by early Polynesian settlers. How are they cultivated? How are they used?
3. **Plants for cloth and construction**: List two plants used for cloth and/or construction, which were brought by early Polynesian settlers. How are they cultivated? How are they used?

4. **References:** List at least two reference books you used.

PART 3: The Socio-Cultural Environment

Weeks 12: Agriculture (p. 246-251)

1. **Regional specialization:** Describe the regional specialization of agricultural product on major Hawaiian Islands. List several examples.
2. **Food supply:** Discuss the lack of self-sufficiency in food supply in Hawai'i. Evaluate the situation using some examples.
3. **Forest industry:** List pros and cons of forest industry in Hawai'i, and assess the future of it.

Weeks 13: Economy & Tourism (pp. 238-245; 258-263)

1. **Geography:** Discuss the pros and cons of geographical location of Hawai'i in terms of economy.
2. **History of Industries:** Describe the rise and fall of industries in Hawaii.
3. **Economic sectors:** List economic sectors and describe each.

Weeks 14: Urban Centers (pp. 233-237)

1. **Urbanization:** Discuss the urbanization process.
2. **History and future of urbanization:** Describe the history and future of Hawai'i's urban growth patterns.

Weeks 15: Culture & the Arts (pp. 211-216)

1. **Arts:** The arts in Hawai'i reflect the varied cultural backgrounds of its citizens. Discuss these varieties.

Not covered this semester:

16. History: Voyaging, plantation, diseases
17. Population: Economy, tourism
18. Culture: Language, religion, society
19. Politics: Military/Environmental quality