DATES TO REMEMBER

- **May 2:** Course evaluation period begins. Check your Hunter e-mail for instructions. Use your Hunter netID and password: Smartphone: www.hunter.cuny.edu/mobile Computer: www.hunter.cuny.edu

- **TODAY:** Last day to hand in REQUIRED LANDSCAPE EXERCISE without penalty.

- **May 17:** Last class lecture and last day for pre-approved extra credit research paper or other exercise.

- **May 24:** Exam III: The Final Exam
  - From 9 to 11 AM (note different time from class)
  - Last day to hand in Exam III extra credit exercise and “Landscape Road Trip” extra credit option.

Regional Landscape Studies

- **NORTHLANDS**
- **NORTHEAST COAST**
- **MEGALOPOLIS**
- **CANADA’S NATIONAL CORE**
- **AMERICA’S HEARTLAND**
- **APPALACHIA and the OZARKS**
- **THE SOUTH**
- **GREAT PLAINS and PRAIRIES**
- **MOUNTAINS, PLATEAUS and BASINS: The Empty Interior**
- **DESERT SOUTHWEST**
- **NORTH PACIFIC COAST**
- **HAWAII**

North Pacific Coast

- **Review Ch 1, 2, 8, in Text; Sec. 4 in Atlas**

- **Elongated isolated coastal area of western N. America from 34°N to 63°N**
  - Over 4,000 mi long but not more than 150 mi wide (most of it is <100 mi wide).
  - Runs north from the Los Angeles Basin.
  - Past San Francisco Bay.
  - Along the U.S. Pacific Northwest and coastal British Columbia (with Vancouver Is.), the Inland Passage and Alaska Panhandle.
  - Turns W at the Gulf of Alaska Coastal Plain.
  - Follows the Alaska Peninsula and the Aleutian Islands for over 1200 miles.
  - Ends at Attu Island near the International Date Line.

**OVERVIEW: Physical Geog.**

- **Marine subtropical climate** from No. Calif. to So. Alaska
  - Wettest area of North America.
  - Average winter temps above 32°F; ice free harbors.

- **Tall parallel N-S trending coastal mountain ranges**
  - Irregular, rocky coastline with little or no coastal plain.
  - Warmer but drier (rain shadow) fertile lowlands between them.

- **Geologically active area.**
  - Shaped by volcanism, earthquakes, mass movements.
  - North: glacier-carved valleys flooded by the sea – fjords.
  - South: large fast flowing rivers fed by rainfall and snowmelt.
  - Tsunami danger from undersea tectonic activity.

- **Densely forested.**
OVERVIEW: Human Geog.

- Isolated from the rest of North America by site and situation (difficult transportation between areas).
- Over 150 distinct Native American ethnic groups located in small coastal valleys (isolated from each other).
- Low population density with few large cities.
- Aleutians had a strategic location in WWII and Cold War
- Diversifying economy but still dominated by primary activities: lumbering, fishing, agriculture.
- SW British Columbia is the fastest growing area.

Subtropical “C” Climate Predominates

Major climate controls are:
- Westerly winds
- Ocean current temperature
- Tall north-south mountains

Variations due to latitude, elevation and situation. Coast of Alaska gets less rain and snow than areas further south. Tall mountains block moisture bearing westerly winds.
- Warm ocean current prevents harbors from freezing during winter even at 60°N.
- Cold ocean current creates California’s coastal fog as warm air blows over cold water.

Unique Vegetation

Giant Redwoods are found on the windward (wet) side the Coast Range in N. California.

Temperate rainforest is supported on the west side of the Olympic Mt’s (Coast Range in NW Washington) which gets >150 in of rain/250 in of snow/yr.

Subregion 1: California Coast

California Coast subregion extends westward from the foothills of the Sierra Nevada and north of the Los Angeles Basin.
Includes:
- Central Valley of California
- San Francisco Bay Estuary
- Coast Ranges

Subregion 2: Pacific Northwest

Pacific Northwest subregion includes NW California, W Oregon, W Washington and SW British Columbia.
- Klamath Mts.
- Coast Ranges
- Cascades
- Coast Mt’s
- Puget Lowlands
- Fraser Valley
- Willamette Lowlands
- Strait of Georgia

The lowlands and the Strait of Georgia are part of a structural trough created along a fault line, deepened by glaciers and flooded by the sea.

Subregion 3: Coastal BC and Southern Alaska

The northernmost and most sparsely populated area. Extends from Puget Sound (WA-BC) to Attu Island, Alaska.

Dominated by the tall Coast Mountains.
Volcanic landscape formed by subduction of the Pacific Plate under North America Plate.
Volcanic Aleutian Islands experience cold, cloudy and wet conditions (Dfc) plus extremes of daylight hours (high latitude location).
Earthquakes and Volcanoes

Entire Pacific Northwest Coast region exists on the NE margin of the Pacific “Ring of Fire,” a geologic zone of earthquakes and volcanism.

- Dots show epicenters of major earthquakes.
- The magnitude 9.2 Great Alaska Earthquake (aka Good Friday Earthquake) that struck south-central Alaska on March 27, 1964, is the largest recorded earthquake in U.S. history and the second-largest earthquake recorded with modern instruments. The earthquake generated a tsunami which devastated Anchorage.

Alaska-Aleutian Convergent Zone

- The Alaska Peninsula and Aleutian Islands experience volcanism because they are located along the boundary where the Pacific Plate goes under the North American Plate.

Southern Alaska’s Volcanic Zone

- Alaska has over 130 volcanoes. About 90 are classified as “active” and 50+ have had recent activity. This region has over 70 of Alaska’s volcanoes.

- Valley of 10,000 Smokes
  - Katmai Cluster
  - Snow-covered Shishaldin
  - Carlisle, central Aleutians

Undersea Cascadia Rupture Zone

- Coastal areas are in danger of destruction from tsunami waves esp. when the shape of the embayment and the configuration of the shoreline funnel water upward. Anchorage and Crescent City (CA) have been severely damaged by tsunamis. Houses built at the edge of cliffs “for the ocean view” can be undermined and may collapse.

- Tsunami Prone Coast
  - 8 ft waves from 2011 Japanese tsunami hitting Crescent City, CA marina.
Volcanism caused by Subduction

The Juan de Fuca Plate is being overridden by N. America Plate. As molten rock moves to the surface through fracture zones in the crumbled North America Plate, volcanoes are created.

Crater Lake, Oregon

FORMATION OF CRATER LAKE
About 7500 years ago, Mt. Mazama erupted with such force that 4,500 ft of its summit was blown off, creating a caldera that has since filled with water.

Eruption of Mt. St. Helens (1980)

Eruption of Mt. St. Helens (1980)

Lahar

LAHAR: volcano eruption-triggered massive fast-moving mudflow (ash, debris and water from melted snow). Greatest danger is at the end of winter when snowpack is thickest.

Landslides and Mudflows

Landslides usually occur during and after an earthquake.

Mudflows occur towards the end of the winter rainy season, during a period of snowmelt and especially in areas that had brush fires at the end of the dry season.
Coast Ranges

- Linear folded mountain ranges (3,000-5,000 ft high in CA; to 7,500 ft in WA) rising from the sea and paralleling the coast from LA Basin to Seattle.
  - The only gap is the Golden Gate.
  - Coastline is characterized by stacks created by headland wave erosion.

Big Sur

The Golden Gate and San Francisco Bay

- SF Bay is a tidal estuary reached via a gap in the Coast Range (Golden Gate).
  - Divided into four bays.
  - Fed by Sacramento and San Joaquin rivers.
  - Has water quality issues from both urban and agricultural pollution.
  - Six major fault zones pass through it, giving the area its NW-SE alignment, and subjecting it to earthquakes.

Central Valley of California

- 400 mi long and 90 mi wide, located between the Coast Ranges and Sierra Nevada.
- Former inland sea; filled with sediment from rivers originating in the Sierra Nevada.
- Extremely flat and fertile.
- Two sections: Sacramento Valley (north) and San Joaquin Valley (south).

San Joaquin Valley

Rain shadow area needs irrigation. Most productive general farming area (fruits and vegetables) of the US.

Coast Mountains

- Extends from British Columbia to SE Alaska (panhandle region). Impedes coastal, overland, and inland travel.
  - St. Elias Mts. (Alaska-Yukon-British Columbia) are world’s tallest coastal mountains.
  - Mt. Logan (19,700 feet) is Canada’s highest point.
  - Glaciers reach the sea and have created fjords when the deepened valleys are flooded by the sea.

Alaska Panhandle/Coastal BC

- Inside Passage is a maze of deep, scenic navigable waterways between the islands.
- Area was flooded by the sea at the end of the Ice Age. The islands are mountain tops.
- Topography limits interaction with the mainland. Transp. is by boat, ferry and small airplane.
- Overland travel along the length of the coast is difficult or impossible.

Juneau, Alaska

Native American Settlement

- Native American population was relatively large because of the moderate climate and abundant year-round food supply.
- Culture
  - 100+ distinct ethnic groups, each located in a small coastal valley.
  - Had a close relationship with nature. Believe the natural world (fauna/flora) interact with a supernatural world. Sustained by hunting, fishing, gathering.
  - Built large, impressive plank houses and dugout canoes.
  - Totem Pole: carved record on a log of person’s life.
Plank Houses of the Northwest

Plank houses are structures used by tribes of the Northwest Coast (California to Alaska). The houses are made of long, flat planks of cedar wood that are lashed to a wooden frame. There are no windows. A hole in the roof vents smoke from the fire pit.

Totem poles are placed outside the structure to protect inhabitants from evil spirits. The pole tells a story about the family or the place through the carvings.

European Arrival

- Last area of N.Am. to be explored by Europeans (because of the distance)
  - Juan de Fuca (1592) for Spain
  - Vitus Bering (1740) for Russia
  - James Cook (1778) for Britain
  - Lewis and Clark (1804) for USA

Russian Settlement

- First settlements late 1700s
  - Fur-trading posts from SE Alaska to N California
  - Never self-sufficient in food; expensive to maintain.
  - Conflict with the British and Americans over Oregon

- Russia sold Alaska to the U.S. in 1867 for $7.2 mil fearing Britain would seize it.
  - Evidence of Russian settlement remain in places names, building design and Russian Orthodox churches.

British Settlement in the Northwest

- Hudson’s Bay Company
  - As part of Rupert’s land, controlled fur-trading in Columbia Basin
  - Dominant force in the area (Oregon to British Columbia) until the 1830s.
- Victoria (1843) is at southern tip of Vancouver Island; strategic overlook on the Strait of Juan de Fuca.
- City of Vancouver
  - Founded as a sawmill site in 1867; logs were floated down river from lumbering sites to the harbor.
  - Protected harbor made it a seaport.
  - Terminus of the transcontinental Canadian Pacific Railway (1886).

Canadian Pacific Railway

American Expansion

- Explored by Lewis and Clarke in 1804-07.
- John Jacob Astor established fur trade (1810); Fort Astoria (now Astoria, OR) at the mouth of Columbia River is the first US settlement (1811) in Pacific Northwest.
- Treaty of 1818 extended the US-Canada border along 49°N latitude to the Rocky Mts., not to the coast.
- US and Great Britain jointly administer Oregon Country (Rocky Mts. to Pacific Ocean) from 1818-46.
- American settlers arrive via the Oregon Trail to Oregon’s Willamette Valley (1840s).
  - By late-1840s Americans in Oregon Territory were pushing for statehood.

Oregon Country

In the early 1800s, the Northwest was contested by Russia (Alaska), Great Britain (Canada), the U.S. (Oregon) and Spain (Mexico).

Spain withdrew claims after Mexican independence and Mexico did not focus on the area north of California.

Oregon Country

The Oregon Treaty of 1846 set the boundary at 49°N latitude with the exception of Vancouver Is.

While politically acceptable, it disrupted N-S movement in Puget Sound and on the Columbia River.

Becomes Oregon Territory in 1848 and the State of Oregon in 1859.

Washington Territory (WA/ID) was created by Congress (1853) at the urging of a growing population around Puget Sound (Seattle).

Washington becomes a state in 1889 and Idaho in 1890.
**Regional Economy**

- **Characteristics:**
  - Production of staple products: wood, fish, agriculture (primary sector).
  - Distance from major markets of US&C increases costs.
  - Cheap electricity is an asset.
  - Tourist industry is growing.

**Forestry**

- **Chief economic activity**
  - BC: 54% of Canada’s timber.
  - WA, OR, CA: 50% of U.S. total.
- **Large-scale logging activity**
  - Clear-cut harvesting method: forest is cut down without regard to size and species of tree, area is replanted.
  - Mills are located within the forest to sort and cut logs to proper lengths.
- **Tree species vary with region**
  - Douglas fir major lumber tree.
  - Trees are large; produce much square footage.
- **Markets**
  - Products are shipped great distances All parts of US&C and Asia.

**Hydroelectric Power and Dams**

- **Region’s hydroelectric potential unmatched in North America**
  - Rugged topography and deep canyons (WA/OR have 40% of U.S. potential)
  - Abundant precip with no dry season.
- Columbia River dams regulate water flow (flood control and navigation), impound water for irrigation and produce electricity and allows ocean-going ships to reach interior British Columbia.

**Fishing**

- **Area of cold water species that once were the lifeline of the region, especially for Native Americans.**
  - Whale and salmon populations have been greatly reduced by overfishing and human interference.
- Dams on the rivers of the Pacific NW have interfered with salmon migration to upstream spawning areas.
  - Fish ladders are an attempt to help migrating fish move around dams.

**Shellfishing**

- Present Population Distribution
  - Faster growth than national averages in both the U.S. and Canada.
  - British Columbia is the fastest growing area.
  - Home to 3% of U.S. population and 10% of Canada’s population.
  - Most people live within the interior lowlands from the Fraser River to Willamette Valley.
- Few large cities:
  - San Francisco Metro: San Francisco, Oakland, San Jose
  - Fresno, CA Sacramento, CA Bakersfield, CA
  - Seattle, WA Portland, OR Anchorage, AK
  - Vancouver, BC Victoria, BC
Anchorage
- Alaska’s largest city with about 300,000 people and 40% of its population.
- Established (1914) as a port for the construction of the Alaska Railroad.
- Grew as a transportation hub and military base because of its harbor and connections to the interior.
- Today is a shipping center.
- Devastated by 1964 earthquake and tsunami.

Vancouver
- Canada’s 3rd largest and fastest growing city (605,000 people).
- Metro area of more than 2.3 million people.
- Western HQ for Canadian businesses.
- Gateway to the Canadian Rockies (hosted the 2010 Winter Olympics) and interior Canada.
- Tourist hub for the Inside Passage.
- Canada’s busiest seaport: Wood products; wheat.

Seattle
- Largest U.S. city of the Pacific Northwest since late 1800s; has over 500,000 in city/3.5 mil metro area.
- Founded as a logging center, became dominant with coming of RRs (1883) and as an outfitting point to Alaska, esp. after gold was discovered (1890s) in the Klondike.
- Second largest container port in U.S.
- Diversification: Computer technology (Microsoft); research & development, medical biotechnology, forest products, banking and finance.

Portland
- Has a pop. of over 590,000 people with a metro area of over 1 million.
- Ranks high among livable cities.
- More diversified economy than Seattle’s with better access to interior via Columbia River.
  - Shipment of grain from eastern Washington.
  - Large, deep port with easy access to the Pacific.
  - Iron and steel, clothing, food processing, computer technology.

San Francisco
(c.812,000)
- North edge of Spanish N. America
- Was the supply port and financial center for the 1849 Gold Rush.
- Terminus of the first transcontinental railroad (Union Pacific)
- Largest West Coast city until 1920
- Received large numbers of Asian immigrants, esp. Chinese
- Excellent harbor with access to the interior
- Has become a cultural center

Other Areas
East Bay: Industrial and shipping area.
Oakland (c.395,000) is the largest city.

Silicon Valley: Name originally referred to the concentration of local firms making silicon chips. Now synonymous with technology.
San Jose (c.967,000) is the largest city of the entire area.

Northern Conurbation: San Francisco Bay Area
- Urbanized area with over 6.5 million people.