Basic Divisions of Geography

- Physical
- Cultural (human)
- Regional
- Spatial Science
  - Technology
  - Spatial Analysis
  - Urban Planning
Physical

- Weather
- Climate
- Environment/ecology
- Soils/agriculture
- Biomes/species
- Coastal processes
- Oceanography
- Hydrology (water)

- Topography (landforms)
- Earth science
  - Volcanoes
  - Earthquakes
  - Plate tectonics

- Resources
  - Location
  - Management
Cultural or Human

- Population
- Migration
- Economic geography
  - Resources/allocation
  - Poverty
  - Development
  - Agriculture - industry
- Political geography
  - Borders/regions
- Transportation
- Urban growth/development
- Human/environment impact
- Religions
- Languages
- Ethnicity and cultures
- Globalization
Regional

❖ “World Regions”
  ❖ Interrelationship of physical environment and human cultures in different areas of the world
  ❖ Concentrates on the differences and patterns of human cultures and their environments

❖ Example: Africa
  ❖ Physical
    ❖ Weather/climate
    ❖ Biomes
    ❖ Topography
    ❖ Water/natural resources
  ❖ Cultural
    ❖ Languages
    ❖ Religions
    ❖ Ethnicities
    ❖ Development
Spatial Science

- Applying science and technology to solve geographical problems
- Rapidly growing field due to new technologies
- High demand for jobs
- Very diverse and interdisciplinary

Spatial analysis
- Locations of resources, transportation, and markets
- Optimal location of business sites
- Agriculture
- Industry – factories, mines
- Service sector (retail)
GIS

- Geographic Information Systems
  - Computer mapping
  - Can add many layers of information
  - Create maps for any application or purpose
  - Use data from diverse sources
    - Satellite images
    - Aerial photos
    - Street maps
    - Census data
    - Research data
GPS

- Global Positioning System
  - Satellite data
  - Pinpoint location anywhere in the world
  - Real-time, interactive devices for field work
  - Download to computer to utilize spatial research data
  - Geolocational service for diverse applications
Remote Sensing

- Satellite imaging
  - Infrared photography
    - Shows vegetation types, terrain, urban areas
    - Examples - analyze land use, urban growth, fire danger
    - Can combine with GIS
  - Satellite imaging on the Internet
    - Google Earth – find any spot on the planet
    - Constantly updated
Careers – who hires geographers?

- Government
  - Census Bureau
  - FBI, CIA
  - USGS
  - Federal, state, local
  - Agencies – HUD, EPA
  - Forestry service
  - Water bureaus
  - United Nations
  - Political campaigns

- Non-profit
  - Environmental groups
  - Human rights orgs.
  - Political watch groups
  - Food and aid orgs.
  - “Think Tanks”
  - Advisory groups
  - Planning agencies
Career Fair CSULA May 2011

- JPL—we've had grads working there in GIS and environmental earth science
- City of Pasadena, Dept. of Transportation
- Cal Trans (we had 4 grads working there)
- ESRI (they couldn't make it, but we've have grads working there in GIS)
- LA Unified, GIS Analysis
- City of Los Angeles, GIS Analysts
- Eco Kai, an environmental consultant company
- Cal Fire and Cal EMA, both have hired our grads
- Community Redevelopment Agency also hired our grad
- National Parks Service also has hired a grad
- National Weather Service couldn't make it, but they have hired geographers

A good source for careers is the AAG "Jobs in Geography" online. Also the Career Center, CSULA, has a webpage where you can look at jobs but majors.
GIS/Map Technologist

- **Occupation Title:** Geographic Information Systems Technicians
- **Description:** Assist scientists, technologists, and related professionals in building, maintaining, modifying, and using geographic information systems (GIS) databases. May also perform some custom application development and provide user support.
- **Standard Occupational Classification (SOC) Code:** 15-1099.07
- **Sample Job Titles:** Not available yet
- **Estimated Total Employment**
  - 2005: 116,760
  - 2006: 180,270
  - 2007: 182,690
  - 2008: 191,780
  - 2009: 195,890
Environmental Technician

- **Occupation Title:** Environmental Science & Protection Technicians, Including Health
- **Description:** Performs laboratory and field tests to monitor the environment and investigate sources of pollution, including those that affect health. Under direction of an environmental scientist or specialist, may collect samples of gases, soil, water, and other materials for testing and take corrective actions as assigned.
- **Standard Occupational Classification (SOC) Code:** 19-4091
- **Sample Job Titles:** Environmental Technician, Environmental Specialist, Laboratory Specialist, Process Laboratory Specialist, Environmental Health Specialist, Laboratory Technician, Sanitarian, Public Health Sanitarian, Industrial Pretreatment Program Specialist (IPP Specialist), Sanitarian Specialist
- **Estimated Total Employment***
  - 2005: 32,460
  - 2006: 34,790
  - 2007: 33,950
  - 2008: 33,370
  - 2009: 30,870
- **Data Source:** Bureau of Labor Statistics
- **Projected Job Openings (2008-2018):** 25,200
  - **Projected Growth (2008-2018):** 20%
  - (total 10 year projection, not annual)
- **Data Source:** O*NET Online
Urban Planning and Analysis

- City Planning
  - Local governments
  - Regional agencies
  - Federal advisors
  - International development

- Transportation
  - Air, rail, highways
  - Ports and harbors
  - National/international

- Infrastructure
  - Water
    - Purification
    - Flood control
    - Sewage treatment
  - Power
    - Electric power grid
    - Power sources
  - Public Spaces
    - Parks, recreation, cultural
    - Civic structures
Urban Planner Salaries
(AAG website)

- **Occupation Title:** Urban & Regional Planners
- **Description:** Develop comprehensive plans and programs for use of land and physical facilities of local jurisdictions, such as towns, cities, counties, and metropolitan areas.
- **Standard Occupational Classification (SOC) Code:** 19-3051
- **Sample Job Titles:** Planner, Community Development Planner, Planning Director, Neighborhood Planner, City Planner, Community Development Director, Regional Planner, Airport Planner, Building, Planning, and Zoning Director, Community Planning and Development Representative

- **Estimated Total Employment**
  - 2005: 31,650
  - 2006: 32,640
  - 2007: 35,040
  - 2008: 37,120
  - 2009: 38,950

- **Data Source:** Bureau of Labor Statistics

- **Projected Job Openings (2008-2018):** 14,700
- **Projected Growth (2008-2018):** 14-19% (total 10 year projection, not annual)
AAG

- www.aag.org
- Association of American Geographers
- Has career section on website
- Has university info also

- www.esri.com
- ESRI – the leading software developer for GIS: Arcview
- Can download copy to try, but the real thing takes a lot of memory
Median Annual Salary
Urban and Regional Planners

$120,000
$110,000
$100,000
$90,000
$80,000
$70,000
$60,000
$50,000
$40,000
$30,000
$20,000
$10,000

2005  2006  2007  2008  2009