# Last Class Wrap-up

## Structural issues

### How is the book?

### How can we deal with reading primary documents?

#### Learning to scan and digest long documents.

#### Learning to organize primary materials.

## Basic Science

### Mechanism of GHG warming

### Carbon Cycle

### Other GHGs

### Orbital dynamics and solar energy

### Ocean currents and weather

### Hydrologic cycle – glaciers and polar ice

### Weather extremes under the current climate

### Mechanisms of sea level rise

### Ocean acidification

## Climate risks

### Sea level rise and coastal areas

### Extreme weather events

#### Hurricanes and typhoons

#### Extreme rain events driving inland flooding

#### Seasonal drought

### Long term shifts in rain patterns leading to permanent drought and monsoon failure

### Glaciers and snow melt reductions affecting water supplies

### Heat effects

#### Crop failures in southern regions

#### Heat deaths from extreme weather events

### Ocean acidification effects on fisheries and biodiversity

## Climate winners

### Northern regions that get longer growing seasons

### Shift of rainfall northward in temperate regions

### Artic regions that open to oil and gas development

## Geopolitical Risks

### Sea level rise on major deltas

#### Ganges - Bangladesh

#### Mekong – Vietnam

#### Nile – Egypt

#### Mississippi – New Orleans

### Drought

#### The middle east

#### Africa

#### Major parts of Africa

### Resource wars

## Technical Control of GHGs

### Efficiency

### Alternative energy

#### Nuclear

#### Solar

#### Wind

#### Biomass

### Carbon capture and sequestration

### Land use practices

## Legal and Political Issues

### Communicating climate risk

### Carbon tax

### Cap and trade

### US Legal Issues

#### The problem of shared federalism in environmental regulation

#### The problem of climate change denial in Congress

#### Standing - Mass v. EPA

#### Regulatory authority – Mass v. EPA

#### Preemption - American Electric Power Co. v. Connecticut

#### GHG regs for cars

#### GHG regs for power plants

### International law issues

#### How is international law enforced?

#### What existing agreements might be models?

##### Montreal Protocol on Ozone

#### GHG Treaties

##### Kyoto

##### Attempts to extend Kyoto

#### Country specific approaches

##### European Union

##### Canada

##### China

##### Brazil

#### Subnational actions

##### States

##### Cities

#### Non-state actors

##### NGOs

##### Corporations

##### Individuals

## Political Bottom-line

### What are the likely long term impacts of international agreements and local actions on GHG emissions and other climate affecting processes?

### What are the timeframe issues?

### What will be the impact of our continuing failure to control GHG emissions?

### Is natural gas a bridge to a lower carbon future or trap?

## Adaption Issues

### Understanding Louisiana geology and hydrology

#### Delta cycles

#### Subsidence

#### Elevations and the effect of sea level rise

### Hurricanes

#### Surge issues

#### Wind issues

### The National Flood Insurance Program

#### Economics

#### Unintended incentives

#### Politics of ending rate subsides

#### DFIRMS and reading flood maps

### Governmental agency liability for flooding

#### FTCA

#### Flood Control Act of 1928

#### The Hurricane Katrina Litigation

### The politics of decommissioning at risk cities such as New Orleans

#### Long term commercial insurance issues

#### Local commitment (money) to maintain flood control structures

#### Business disruption by evacuations

#### Rebuilding after future storms if federal funds are limited

#### The ultimate endgame as ocean rise makes continued occupation of the delta impossible