Two required essays are still due by **April 17, 2020**.

A late penalty will be applied.

A third essay may be used for extra credit in place of a “Think Geographically” essay.

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**ESSAY TOPICS (choose any two):**

- Contributions of a noted geographer, earth scientist or explorer (ch. 1)
- Relationship of climate change to a listed current event topic (ch. 2)
- Discuss a natural process that is deemed a natural hazard (ch. 3)

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**Extra Credit:**

“Think Geographically” Essays from any five of the textbook’s chapters 4-12.

- Last day to submit as of now is **May 12** but it is best to do them as you finish reading a chapter.

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- Any essay may be handed in before the deadline.
- Don’t wait for the night before to write them!
PART II: People and their Physical Environment

I. Introduction to the Physical Environment
II. Earth-Sun Relationship
III. Earth Systems
   A. The Hydrosphere: Oceans
   B. The Atmosphere: Weather and Climate
   C. The Lithosphere: Geologic Influences

IV. Earth Habitat
   A. Biosphere
   B. Natural Controls and Cycles
   C. Human Impact
   D. Natural Hazards
   E. Earth Resources
17: Earth Habitat

Human Impact and Natural Processes (aka Hazards)

GEOG 101 Part II
People and their Physical Environment

Prof. Anthony Grande
Hunter College Geography
Natural Processes and Humans

- Throughout human history, people have had to cope with their surroundings (natural landscapes) and deal with natural processes.
  - The natural processes that are harmful to us are called "hazards."

Despite of our technological advancements, we cannot control the natural processes that adversely affect us and we will continue to be subservient to those forces.

- That is why when a natural process happens, we deem the process “bad” and “harmful,” and label it:

  **NATURAL HAZARD.**

When it is extremely destructive and deadly, it is termed a

**NATURAL DISASTER.**
They are atmospheric, geologic and oceanic in nature.
  - The list is long.
Every continent has them.
They become hazards when people are adversely affected by them.

Natural process + people = natural hazard.
We must learn to live with the “hazards.”

- Learn to avoid them
- Have selective land use
- Predict their occurrences
- Develop technology to protect ourselves
- Try to prevent them from becoming disasters
The chief natural process killers of people over the last 100 years are ... ?

1. drought (10 million people)
2. floods (6.8 mil)
3. earthquakes (1.8 mil)
4. wind (1.2 mil)
5. volcanoes (0.9 mil)
6. mass movements – land and snow (0.5 mil)

**Heat waves and cold spells are silent killers.**
When Natural Processes turn into Disasters

New York Times video record of select natural disasters

Where Disaster Strikes Again and Again in the USA

Losses in each ZIP code from major natural disasters, 2002-17

Sites of Major Natural Disasters in the US: 2006-2017
As natural processes affect people, the actions of people impinge on nature and can be disruptive to nature:

- pollution
- agricultural methods
- importing non-native plants, insects and animals
- killing/extinction of species

People must be aware of their actions and anticipate the consequences.

At the same time they must be cognizant on ways to protect the environment.

Humans have had an impact on the natural environment from the beginning of their existence: harnessing fire and cutting down vegetation.

- We have interfered with natural cycles.
- We have disrupted natural controls.
- We have altered the equilibrium of some planetary sequences of events.
- We have amplified natural occurrences.
A major focus of human impact is the earth’s ability to retain heat -- Greenhouse Effect -- and thus climate change. This began with the Industrial Revolution and the use of coal to produce power.

https://www.youtube.com/watch?v=6VUPIX7yEOM  Greenhouse Effect, 4 min
https://www.youtube.com/watch?v=G4H1N_yXBiA  Climate Change and People, 4 min
**HUMAN IMPACT:**

Protecting an area from Flooding

<table>
<thead>
<tr>
<th>Normal Conditions</th>
<th>“Great flood” of 1993 at St. Louis, Missouri. How did this happen?</th>
</tr>
</thead>
<tbody>
<tr>
<td>The junction of the Missouri and Mississippi Rivers is prone to flooding, a natural process.</td>
<td>But people do not like to be flooded.</td>
</tr>
</tbody>
</table>
The building of levees to protect St. Louis, MO and East St. Louis, IL increased flooding and flood damage both upstream and downstream of the protected areas… including flooding areas behind broken levees!
Levees (at A) constrict stream flow and prevent water from spreading laterally, so it backs up further upstream (at B).

The constricted stream channel now accelerates the flow of water moving past the protected areas. It creates a more powerful current downstream (at C), eroding levees and river banks.

27 min program: 1993 flood 25 years later
Analyzing and Dealing with Change

1. Identify the problem.

2. Assess the situation.


WCS and WWF have geographers on staff to help them study environmental change and educate the public.

Threats to St-Bartélemy’s Environment

Causes, Impacts, and Possible Actions

- Invasive Species
- Climate Change
- Inadequate Policies and Laws
- Research Gaps
- Erosion
- Likely Overfishing
- Coral Reefs
- Sea Grass Beds
- Terrestrial Vegetation
- Mangroves
- Salt Ponds
- Wastewater
- Eutrophication - Sediment Input

Recommendations and Key Priorities

- Research
- Legal Framework
- Sustainable Development
- Carrying Capacity
- Climate Change
- Capacity Building Programs
- Communications Strategy
- Tourism

Source: Jedot C., 2016 - Infographic: Hendrik Stieber

http://escaribbean.com

WCS and WWF have geographers on staff to help them study environmental change and educate the public.
Hurricane Katrina, 2005

Katrina 28 ft storm surge in Mississippi (2.5 min)
https://www.youtube.com/watch?v=qd8WiiXNxo

Hurricane storm surge demo (1 min)
https://www.youtube.com/watch?v=b4ZhjwbNTXk

https://www.youtube.com/watch?v=jCNhM_ANvy4
Severe weather ABC News coverage -- Hurricane Michael, 2018


 Hurricane damage categories:
https://www.nhc.noaa.gov/aboutsshws.php
Urban Flooding Potential

Flood risk in the NYC area

Flood risk in Houston, TX

Flood risk in Tampa, FL

https://youtu.be/y3FqAJUs1s8
Baton Rouge, LA flooding

2017 before and after photos Houston, TX
Flooding of a Houston Suburb during Hurricane Harvey

Barker Reservoir is a flood control project built to contain excess water, yet housing was allowed along the perimeter outside of “historic flood levels.”

TORNADO

https://www.youtube.com/watch?v=7KDz6dGQ5RE
3 min Birth of a Tornado
VOLCANIC ERUPTION

Before                  After

Mt. St. Helens, Washington

https://www.youtube.com/watch?v=Cvjwt9nnwXY
Pyroclastic flow, Mt Unzen, Japan (1 min)

https://www.youtube.com/watch?v=IhU6jml6NY4
Mt St Helens 1980 (2.5 min)
This page features images and text related to river flooding. The images show flooded areas with water covering roads and houses, indicating the extent of the flooding. A web link is also provided:


The text references the Spring 2019 flooding in Nebraska, highlighting it as both a natural process and a natural hazard.
RIVER ICE JAMS

Related topic: heavy snowfall at Donner Pass

EARTHQUAKE DAMAGE

Taiwan earthquake 2018: panic and fear as first deadly quake hit Hualien

Hualien, Taiwan 2018  
https://www.youtube.com/watch?v=2EC63nqzAFs 1.5 min
EARTHQUAKE DAMAGE

https://www.youtube.com/watch?v=e7ho6z32yyo 3 min
https://www.youtube.com/watch?v=0Djg5z2FH0l 50 sec
https://www.youtube.com/watch?v=VSqB1lWr6O4 2.5 min
Japan
March, 2011

https://www.youtube.com/watch?v=oWzdgBNfhQU Earthquake plus tsunami  3.5 min
COASTAL STORMS

Breach of a barrier island by waves at Westhampton Beach, NY

Review the “Coasts In Crisis” slides from Lecture15
Plum Island, MA
(March 2013)
LIDAR Image of Barrier Island Breach
Hatteras Island, NC, September 2003
NEXT:
Earth Resources
PART II Exam Topics:

I. Intro. to the Physical Environment
II. Earth-Sun Relationship
III. Earth Systems
   - The Hydrosphere: Oceans
   - The Atmosphere: Weather and Climate
   - The Lithosphere: Geologic Influences
IV. Earth Habitat and Environmental Protection
   - The Biosphere: Zones of Life
   - Natural Controls and Cycles
   - Human Impact
   - Natural Hazards
   - Earth Resources

NEW DATE
EXAM 2 is now Tuesday, April 21 on BlackBoard
Be sure you know how to enter BlackBoard and access the timed exam which starts and stops automatically

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Exam 2 will cover all the topics in Part II.

See Study Guide II on the course home page for definitions and place names for North America, South America and Antarctica.