I. Physical Geography
   A. climate
      1. straddles equator and both Tropics
         a. A climates
            1) Congo Basin: tropical rainforest
            2) savanna: tree-studded grasslands
         b. B climate
            1) drier tropical steppe
               a) Sahel in the north
               b) desertification: set of ecological changes that turns non-desert lands into desert
            2) desert
               a) Sahara in the north
               b) Kalahari in the south
         c. C climate: Mediterranean climate - northern/southern coasts
   B. unique topography
      1. plateau continent
      2. plate tectonics
         a. Africa - heart of Pangea
         b. escarpments: relics of giant faults when landmasses split off
         c. Rift Valley of East Africa
            1) north/south aligned elongated lakes
            2) Red Sea

II. Historical Geography: Colonial transformation and legacy
   A. slave trade: 17\textsuperscript{th} - 19\textsuperscript{th} centuries
   B. Berlin Conference of 1884
      1. major colonial powers - map p.385
      2. results
         a. African peoples divided
         b. hostile societies thrown together
         c. migration routes cut off
         d. world’s largest refugee population
      3. Gambia
   C. Sudan 2011 secession referendum
      1. historical turmoil
         a. religious divide
         b. oil
      2. referendum results – South Sudan independence July 9, 2011
      3. issues still to be resolved
III. Human Geography Characteristics/Issues
A. religion: competition Islam/Christian/traditional
B. high rate of population growth
C. economic power
D. celebrating cultural differences

IV. Infectious Diseases - Subdisciplines in Geography
A. cultural geography
   1. spatial diffusion: how phenomena spread through a population across space and time
B. medical geography
   1. study of people's health in a spatial context
      a. source areas
      b. diffusion
   2. maps
C. disease terminology
   1. disease agent: pathogen or illness-causing organism itself
   2. disease vector: intermediate transmitter of the disease
   3. disease reservoir: animate or inanimate sources which harbor disease-causing organisms and can serve as potential sources of disease outbreaks
   4. epidemic: local or regional outbreak affecting many people
   5. pandemic: worldwide epidemic
   6. endemic: disease carried by a large number of people in a region

V. Disease throughout history
B. pre-20th century
C. late 19th/early 20th century
   1. conquering diseases
      a. farming
      b. hygiene
      c. medicine - 1880's germ theory proved
   2. monuments to conquering disease
   3. WWII

VI. Current Reemergence of Infectious Diseases
A. 6 major causes of disease reemergence
   1. microbial adaptation and change
   2. technology and industry
   3. breakdown of public health measures
   4. economic development and changing land use
   5. travel and trade
   6. changes in human demographics and behaviors
B. why Sub-Saharan Africa? video

VII. Current threats
A. hemorrhagic fevers (bleeding)
   1. yellow fever/dengue fever/Lhasa fever
   2. Ebola: fatality rate = 50-90%
      a. first recorded case: 1976 Democratic Republic of Congo
      b. Western Africa outbreak 2014: Guinea, Liberia, Sierra Leone
      c. current status: 28,644 cases/11,320 deaths (3/17/16)
   3. Hantavirus
      a. 1993 Four Corners area - Navaho (Hantavirus Pulmonary Syndrome)
b. 2012 Yosemite National park
c. total recorded US cases = 690

B. AIDS - pandemic
1. emergence
2. UNAIDS world stats
   a. >30 million deaths; 71% in Africa
   b. 36.7 million living w/HIV/AIDS; 25.5 million in Sub-Saharan Africa
   c. highest number of AIDS cases: South Africa 7 million
   d. highest percent infected adults: Swaziland 28.8%
3. AIDS causes in Africa
   a. monkey contact
   b. imported medical technology
   c. population movement
   d. poverty
   e. geographic distribution/variation: Islamic north v. Sub-Saharan Africa
4. issues
   a. education challenging
   b. denial/conspiracy
   c. denial
   d. cultural differences
   e. fatalism
   f. breast feeding
   g. impact on life expectancy
5. initiatives
   a. African cultural solutions
   b. High tech
   c. ABC -- Uganda
   d. CNN
   e. South Africa
   f. circumcision
   g. antiretroviral drugs

C. SARS (Severe Acute Respiratory Syndrome): 8,445 cases/790 deaths

D. MERS (Middle East Respiratory Syndrome) 3/17: 1917 cases/790 deaths
1. Saudi Arabia
2. camels

E. Zika virus 2016
1. history of virus
2. current status
   a. US travel related: 4,813
   b. US locally acquired: 215 (Florida); 6 (Texas); 35,197 Puerto Rico
3. Aedes aegypti
4. range
5. threats
6. warnings
7. combatting Zika
8. special concerns:
   a. Rio Olympic games
   b. climate change
F. West Nile Virus
G. influenza
   3. threat posed
   4. avian influenza H5N1
      a. diffusion
      b. spring 2006: → Europe and Africa
      c. current situation (2/14/17): 856 human cases; 452 deaths
      d. Egypt
      e. Southeast Asia: Indonesia; Vietnam
      f. fear pandemic if mutates
5. 1918 Spanish flu epidemic
6. current threats and challenges
H. What causes disease?
   1. human issues: war, poverty, education, access to clean water, environmental disturbances
   2. Quammen *Spillover*
   3. EcoHealth Alliance 2013

*The Coming Plague* (video)