

Study Questions: Guest Lecture on Climate & Biomes (John Carothers, Cabrillo College)
Some of these may seem like repetitive questions, but answer them all and you'll really understand!

1. Explain the terms climate, weather and biomes.
2. What is *insolation* and how does it affect climate averages? Why are the poles colder than the equator?
3. What are gyres, what causes them (large circular ocean currents driven by wind and rotation of the earth, and the inertia of water). Know how they affect climate. John also talked about currents on the east and west coast of South Africa, and how the west coast is cool while the east coast has coral (tropical) reefs. Why?
4. What is a driving factor why deserts exist where they do? (rain shadows, cold ocean currents, Hadley cells – all can play a role)
5. Describe/diagram what is meant by the term “rain shadow.”
6. What happens to air temperature and moisture content as air pressure increases or decreases? Explain the term “adiabatic cooling and heating.”
7. Explain the term “Hadley cell;” how do Hadley cells affect climate?
8. Describe the three factors setting climate averages (latitude and Insolation, Ocean currents, Topography)
9. Know how ocean currents affect climate on the east vrs. The west coast of the US
10. How has climate change affected some specific places/organisms (eg. the Pika in the Sierras)
11. What happens to warm air (rises and loses moisture), what happens to cold air (denser so sinks and generally carries little moisture).
12. What effect has human caused fragmentation had on population's abilities to adapt to change? Many cannot migrate or move in response – they are locked in ‘refugia’, trapped. This is particularly true of plants.
13. Be able to talk about how biomes/climates that change with latitude are similar to the changes up a mountain (altitude). How are these changing with climate change?