

California Naturalist –Homework – Chapter 7 – Energy, Global and Env. Issues

We employ a somewhat different approach to homework. The intention of this approach is to foster greater engagement with the course material and cultivate wonder and curiosity. You are also encouraged to review the standard homework/study questions prepared by the UCANR California Naturalist Program and request instructor clarification of anything you're not sure about. You may opt to answer and submit these standard questions for each chapter instead of Sierra Stream's assignment. See below for a link to the PDF with those questions for all the chapters. NOTE: the PDF has not downloaded properly for some people. If this happens to you, please email cnssi@sierrastreamsinstitute.org and we'll send it to you via email.

HOW TO SUBMIT HOMEWORK ASSIGNMENTS

- Create a new email with subject line: CNat-Class x-FirstName LastName

For example: CNat-Class 1-Jane Goodall

- Then either attach your completed homework or paste it into the body of the email.

Submissions WILL ONLY BE OPENED IF they meet these criteria.

- Email your homework to the following email address:

cnssi@sierrastreamsinstitute.org

BEFORE CLASS

- Read chapter 7 in the textbook - you may do the homework as you go if you wish.
 - Class content will build on the readings and PDFs throughout the course.

Optional before class:

- EXPLORE our class website: <https://cnssi.wordpress.com>. This will be ever-evolving. Please note that the info is located in the drop down options.
- VIEW this PDF (originally a PowerPoint):

https://cnssi.files.wordpress.com/2018/03/chaptereight_v1.pdf

HOMEWORK Chapter #7

You will get the most out of the in-class experience if you have done your homework each week before class begins.

The homework for every chapter in the book will be to engage as described below. If you prefer a more traditional homework approach you may INSTEAD submit answers to the standard homework/study questions prepared by the UC California Naturalist Program. See below.

Your Name _____

Homework for Class # _____ **~ Chapter #** _____ **~ Topic**

ENGAGE with material from reading and PDF by briefly noting:

• ***Two things that caught your attention. What interested you? Why?***

1.

2.

• ***Two questions that come to mind about the material. What are you curious about?***

1.

2.

• ***One or two things you'd love to share with someone. Share it if you can!***

1.

2.

• Was there anything that was confusing, or about which you'd like more info or clarification?

Chapter 7 – Energy & Global Environmental Issues - UC California Naturalist Program Standard Homework/Study Questions

Below are the standard homework/study questions prepared by the UC California Naturalist Program for Chapter 7. You are encouraged to review these and request instructor clarification of anything you're not sure about.

You may opt to answer and submit these standard questions for each chapter instead of the homework described above.

*This PDF contains study questions for all the chapters in the textbook:
https://cnssi.files.wordpress.com/2015/02/cal-nat-handbook_all-chapters_questions-and-study-guide.pdf*

Chapter 7 – Energy & Global Environmental Issues

1. Laws of Physics and Entropy:
 - a. What is entropy?
 - b. What is the general direction of energy?
 - c. Can energy be “used up?”
2. Give an example of each of these forms of energy:
 - a. Electromagnetic
 - b. Nuclear
 - c. Chemical
 - d. Mechanical
 - e. Thermal
3. Sources of energy:
 - a. What drives the global geological cycle?
 - b. Where does the majority of energy for life on earth come from?
4. Back to that water molecule: What makes it such an important molecule for energy transformation on earth?
5. What are the two primary pathways for the storage of sunlight energy on earth?
6. What is respiration? How is it similar to combustion?
7. How does the food web contribute to entropy?
8. Energy use by people:
 - a. What are fossil fuels? (i.e. what is the source of energy in fossil fuels?)
 - b. At the current rate of consumption of fossil fuels, roughly how long can we maintain our contemporary lifestyles?
9. What are some advantages and disadvantages for each of the following energy sources?
 - a. Fossil fuels?
 - b. Nuclear power?
 - c. Geothermal?
 - d. Wood as energy source?
 - e. Solar?
 - f. Wind?
 - g. Hydroelectric?
 - h. Wave and tidal energy harvesting?

- i. Ethanol?
10. Climate change:
 - a. What is the “greenhouse effect?”
 - b. What are three greenhouse gasses, and how are they produced? Which has the greatest longevity in the atmosphere?
 - c. Is climate change preventable at this stage?
 - d. What are some of the major effects of climate change?
 - e. How does this specifically affect CA?
 - f. What does an early spring mean for plant and pollinator phenology?
 - g. What does sea level rise mean to coastal wetlands and the Central Valley?
 - h. Why are the poor disproportionately affected by climate change?
 - i. How will the Sierra snowpack impact our ability to mitigate and adapt to change?
 11. Ozone depletion and production: Where do we want to find ozone? What agreement slowed the worldwide production of ozone depleting chemicals?
 - a. How do we produce ground level ozone, and what are the impacts?
 12. What causes “dead zones?” How can they be prevented or reversed?
 13. Why are California farms smaller than the average US farm? What is one of the leading threats to farms in CA?
 14. What threats to farms pose to salmon? How so?
 15. Air pollution:
 - a. What are the pollutants of most concern in California, and what are their sources?
 - b. Why are we seeing higher levels of ozone pollution as our climate warms?
 16. Solid Waste:
 - a. What are problems associated with landfills?
 - b. How can we mitigate some of these problems?
 - c. What is the most effective way to reduce our waste?
 17. As populations increase and change in California, how does this change our conservation concerns and potential for action?