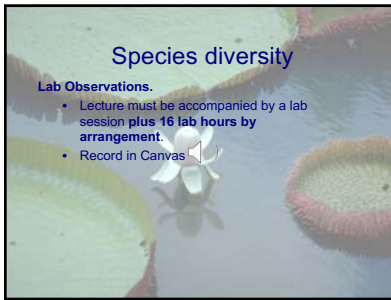
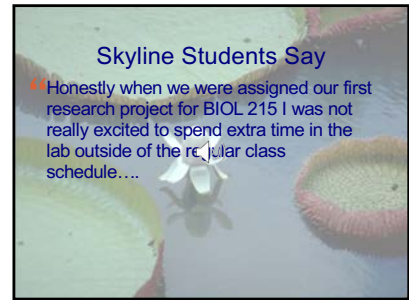


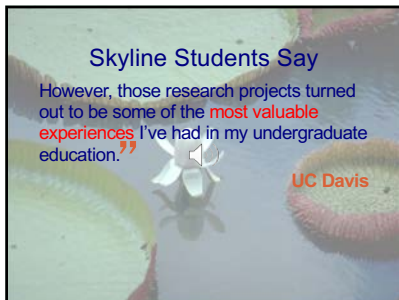
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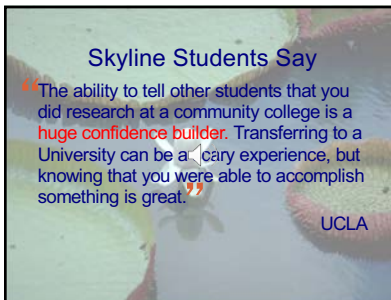
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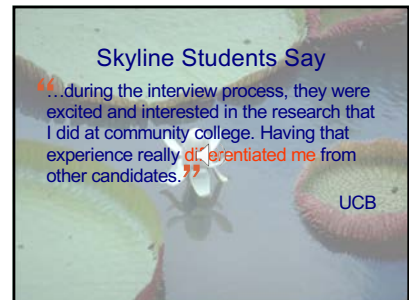
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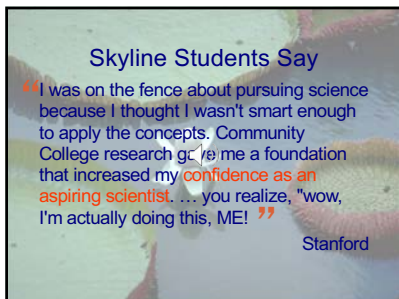
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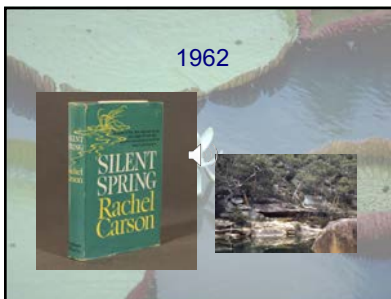
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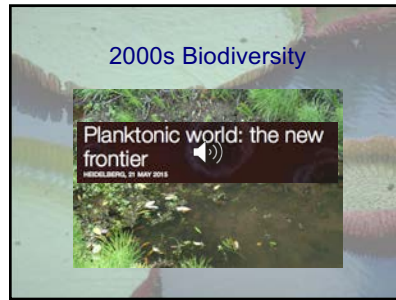
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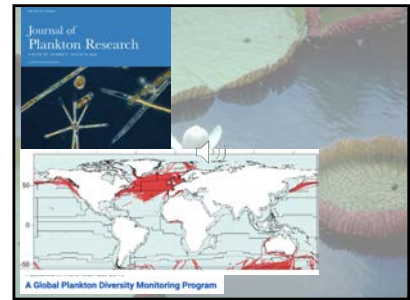
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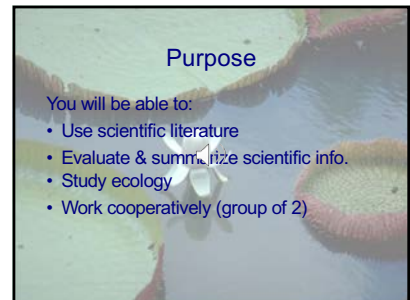
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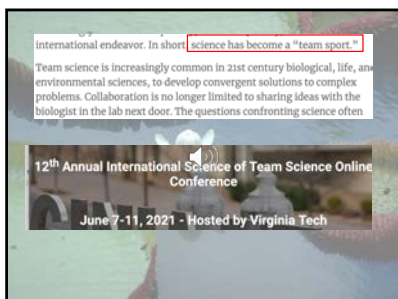
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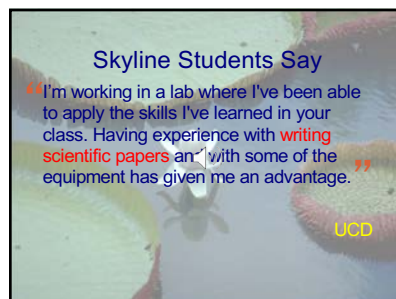
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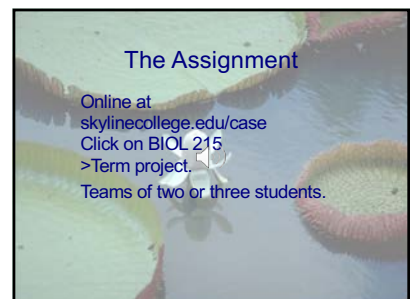
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18


The Assignment

- Six (max.) content pages. **One report/team.**
- **Background**
- **Materials & methods**
- **Results**
- **Discussion**
- Literature cited page. Include 6 references in correct format. (6)
You must use at least 3 journal articles; all references may not be books and websites. References must be cited somewhere in the content. Do not include references prior to 1980.
- Three figures on three separate pages.
 - a. Each figure must have a legend.
 - b. Refer to each figure in the body of the text.
 - c. Figures can include (one) photograph or picture of the animal; food chain, phylogenetic tree, calculations, graphs. (9).

19

Species diversity

a. **Background.** A review of literature on some aspect of aquatic microecosystems. Put everything *in your own words* with the proper citation in parentheses; do not quote directly from other works (1).



20

Background Topics

A review of literature on some aspect of aquatic microecosystems. This may include one of the following.

1. Impact and mitigation of storm drains on aquatic ecosystems.
2. How sensitive are these systems to human-induced changes? At what time of year are human-induced deviations?
3. What is the impact of invasive species introduction on ecosystem function and service?
4. What are the dynamics of nutrient cycling in aquatic ecosystems? How important are wetlands to total nitrogen load?
5. What are minimum water quantity and quality requirements for maintenance of a healthy ecosystem?
6. What are the inequities between supply and demand of water?
7. Who are the relevant stakeholders that use water, how much do they use, and how much access do they have to it?
8. How much is left for ecosystem functioning and if not enough, how will the lack of water affect ecosystem function?
9. How can conflict among stakeholders, and those between stakeholders and nature's needs, be reduced and resolved?
10. What are the feedbacks between water scarcity for human purposes and mismanagement?
11. What are the connections between land and water quality? (land use management change, large dams, changing water balance changes? How has irrigation impacted regional discharge and how is this likely to change in the future?)
12. What are the consequences of alteration of connectivity in time and space? (upstream downstream, restoration?)
13. How does wetland destruction/restoration impact greenhouse gas production (CH₄, CO₂)?
14. What are feedbacks between species loss (due to invasive species, pollution, ecosystem change) and ecosystem function?
15. How might climate-induced changes in the cryosphere (glacial and snow) impact human and aquatic ecosystems?
16. What are the potential feedbacks to atmosphere, infrastructure, and ecosystems of future permafrost changes?
17. What are the feedbacks to the planetary energy budget of future changes in snow and sea ice area?

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Background

Select a background topic (skylinecollege.edu/case)
Review of literature
-Journal articles
-Individual report on one article due...Oct 4



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References

- Articles from peer reviewed scientific journals.
- Internet references must be from academic sources only.
No: Wikis, encyclopedias, dictionaries, textbooks, or search engines.
- Google search, Gale, Skyline College, and other search engines are **not** citations.
- All citations must be in the proper format. See the Style Sheet (BIOL 215 web site)

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References

- To get started...each student reads one article for Journal Assignment
- Due...Oct 4
- Final project report needs at least 6 refs.

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Species diversity

b. **Materials & Methods.**

- Natural water/mud sample
- Visit your sample site

25

Species diversity

b. **Materials & Methods.**



26

Species diversity

b. **Microscopes**

- Stereo




27

Species diversity

b. Microscopes

- Stereo
- Compound upright




28

Species diversity

b. Microscopes

- Stereo
- Compound upright
- Compound inverted




29

Species diversity

b. Microscopes

- Stereo
- Compound upright
- Compound inverted

Cover **OFF**



30

What happens if you leave the lid on during observations?




31

Species diversity

b. Materials & Methods.

- Wiki log. Weekly observations.



32

Species diversity

b. Materials & Methods.

- Wiki log. Weekly observations.

16 lab hours by arrangement.
Scheduling And Reporting on Canvas

33

Species diversity

b. Materials & Methods.

- Wiki log. Weekly observations.
- Organisms present
 - Numbers
- Maintenance
 - Replace evaporation every three days!!!!
- Behaviors
 - Motility
 - Location

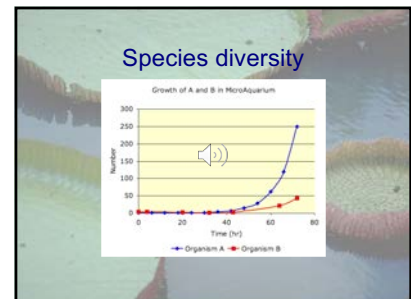
34

Species diversity

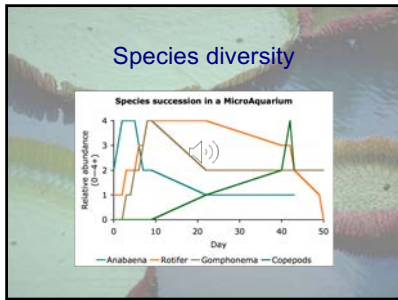
c. Results.

- Tables summarizing observations you have posted in your log. (No raw data in report.)
- Graph(s) of population changes. A minimum of one graph is required.

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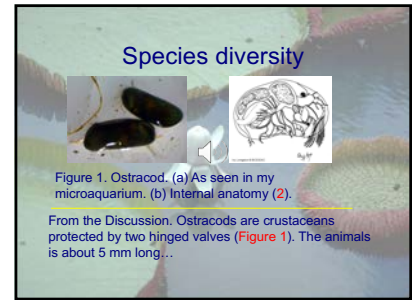
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Species diversity

d. Discussion and conclusions

- i. An in-depth discussion on at least one of the organisms you observed.
- ii. Discuss the changes that occurred in your MicroAquarium over the past nine weeks. Note factors that might have influenced these changes.
- iii. Compare your results with those of a different sample.

38



39



40



41

Literature Cited

1. Murdock, P. et al. (2000). Potential effects of climate change on surface water quality in North America. *Journal of the American Water Resources Association*, 36.2: 347-366.
2. The Smallest Page on Earth. (n.d.). www.microscopy-uk.org.uk/mag/indexmag.html?http://www.microscopy-uk.org.uk/mag/wimsmall/smal1.html. Accessed Sept. 9, 2019.
3. J. Byrnes, P. Reynolds, and J. Stachowicz. (2007). Invasions and extinctions reshape coastal marine food webs. *PLoS One*, 2(3): e295. [dx.doi.org/10.1371/journal.pone.0000295](https://doi.org/10.1371/journal.pone.0000295).

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Due dates

- **Individual**
 - First Journal article... **Oct 4**
 - Plankton data... **Oct 29**
- **Group (2/3 students)**
 - Regular wiki entries...Canvas
 - Graded *throughout* semester, starting **this** week.
- **Final report (one per group)**
 - **Nov 24**

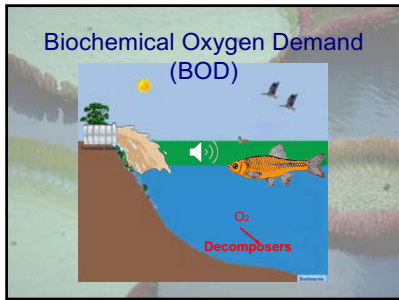
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Can I feed my microaquarium now?

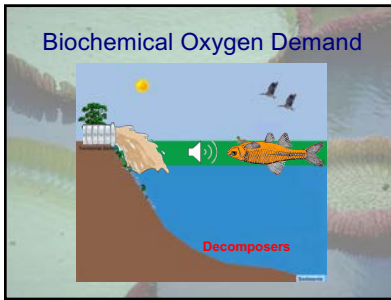
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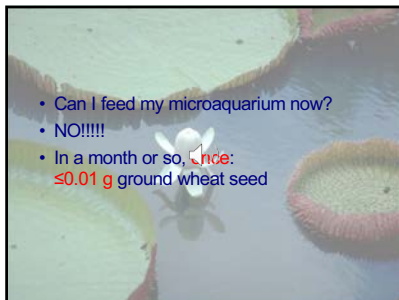
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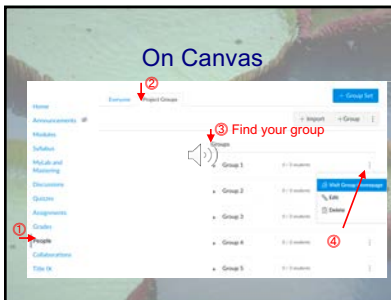
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