


Projects



- Ethnobotany
- Rhizosphere
- Urban creeks

1

To Do

- 16 hr TBA
- 1 journal article per **person**
- 1 notebook per **pair**
- 1 final report per **pair**

2

A student said:

“I will admit, in the beginning of BIO 230 when you told us we had to do our own research/project, I was BUMMED! I didn't want to do it and I didn't plan on actually trying to do a good job.”

3

A student said:

However, as the semester went on, I got more and more into the research and I even became excited when we got results!”

4

A student said:

“Honestly when we were assigned a research project I was not really excited to spend extra time in the lab outside of the regular class schedule. However, those research projects turned out to be some of the most valuable experiences I have gained in my undergraduate education.”

UCD

5

Skyline Students Say

“The ability to tell other students that you did research at a community college is a huge confidence builder. Transferring to a University can be a scary experience, but knowing that you were able to accomplish something is great.”

UCLA

6

Skyline Students Say

“Director told me my research experience helped me stand out against other applicants.”

CSU Long Beach

7

Skyline Students Say

“...during the interview process, they were excited and interested in the research that I did at community college. Having that experience really differentiated me from other candidates.”

UCB

8

Skyline Students Say

“I was offered a few PAID summer research positions here at Stanford mostly as a result of having a good resume. Being able to come into a competitive academic setting with some prior experience under my belt has served me well.”

Stanford

9

Skyline Students Say

“I was on the fence about pursuing science because I thought I wasn't smart enough to apply the concepts. Community College research gave me a foundation that increased my confidence as an aspiring scientist. ... you realize, "wow, I'm actually doing this, ME! ”

Stanford

10


Skyline Students Say

“I'm working in a lab where I've been able to apply the skills I've learned in your class. Having experience with writing scientific papers and with some of the equipment has given me an advantage.”

UCD

11

How?




To be eligible for a grade of:

- A-5 experiments
- B-4 experiments
- C-3 experiments

Over 2 months.


12

Lab Notebook



13


Lab Notebook



Regular, dated, signed entries: notes, references, protocols, data...


14

Lab Notebook



15

Projects



16

Microbiomes

- Communities of microorganisms that live on or in people, plants, soil, oceans, and the atmosphere.
- The NMI aims to advance understanding of microbiome behavior and enable protection and restoration of healthy microbiome function.

17

TheScientist




PLANT SCIENCE TO THE RESCUE

18

Microbiomes


- Rhizosphere
- Phyllosphere



19


Microbiomes

- How does urbanization affect streams?




20

Microbiomes




21

Where does it go?



22


How does it affect life?



Source of plastics in ocean!
Largest source of water pollution!

23

Ethnobotany



- Study of the relationships that exist between peoples and plants.

24

Enthobotany

- 1/3 of crops produced for human consumption are lost or wasted.
- More than 1/4 of the world's fresh water and 1/5 of its farmland are used to produce food that is never consumed
- 1/2 of fruits and vegetables harvested in the tropics are lost due to fungal spoilage.
- Solve it.

25

“There are, however, other possibilities, notably those connected with natural substances. Little, however, has been done to purify or determine the properties of any of these substances.”


—Ernst Chain

26


References

- No references
- No encyclopedia
- No Wikipedia

You must have 5 scholarly (journal) articles




27



Citations

- **NEVER** do this!!!
- http://www.ncbi.nlm.nih.gov/pubmed/18205018?ordinalpos=2&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum

28



Or this

- Vasudevan, P.T. and M. Brig. searchresults


29



Or this...

- http://find.galegroup.com/ips/retrieve.do?subjectParam=Locale%2528en%252C%252C%2529%253AFQE%253D%2528SU%252CNone%252C20%2529biodiesel%2Bproduction%253AAnd%253ALQE%253D%2528AC%252CNone%252C8%2529fulltext%2524&contentSet=IAC-userGroupName=plan_skyline&resultListType=RESULT_LIST&sgHitCountType=None&qrySerid=Locale%28en%2C%29%3AFQE%3D%28KE%


30



Citations

Vasudevan, P.T. and M. Brig. (2008). Biodiesel production—current state of the art and challenges. *Journal of Industrial Microbiology and Biotechnology* 35(5):421-430.


31



Citations

Vasudevan, P.T. and M. Brig. (2008). Biodiesel production—current state of the art and challenges. *Journal of Industrial Microbiology and Biotechnology* 35(5):421-430.

32




Citations

Vasudevan, P.T. and M. Brig. (2008). Biodiesel production—current state of the art and challenges. *Journal of Industrial Microbiology and Biotechnology* 35(5):421-430.

- Punctuation
- Italics

33




Citations

Vasudevan, P.T. and M. Brig. (2008). Biodiesel production—current state of the art and challenges. *Journal of Industrial Microbiology and Biotechnology* 35(5):421-430.

- Journal vol (Issue):page-page, year

34




Journal article

Related to your project

- Background
- Procedures

35



Journal article

Related to your project

Due: 3/6/20


One/person

Start with: PubMed, Google Scholar

Find an article and answer the questions

36

Projects



- One project per two students.
- One lab notebook per two students.
- Chose topic... 2/20/20
- See me...

37

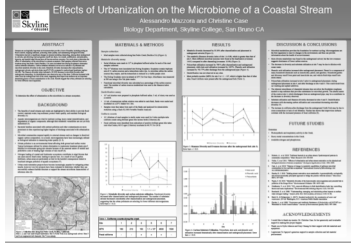
Research Symposium



- May 8, 2020

38

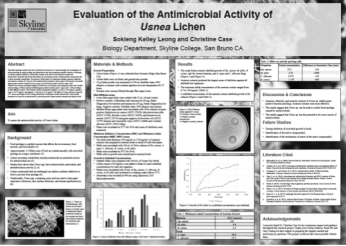
Effects of Urbanization on the Microbiome of a Coastal Stream
Alexandra Murray and Christine Case
Biology Department, Skyline College, San Bruno CA



Presented at National SACNAS conference

39

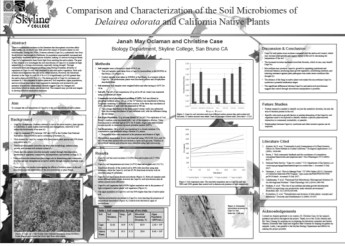
Evaluation of the Antimicrobial Activity of *Usnea* Lichen
Bekkiang Kaiting Liming and Christine Case
Biology Department, Skyline College, San Bruno CA



Won at National SACNAS conference

40

Comparison and Characterization of the Soil Microbiomes of *Dalmanea odorata* and *Callitriche Nuttallii* Plants
Joseph May-Garrison and Christine Case
Biology Department, Skyline College, San Bruno CA



Won at National SACNAS conference

41

Research Symposium



- May 8, 2020
- Will you have enough data by 4/19/20 to prepare a poster for the Symposium?

42