## The Evolution of Human Skin Color Teaching Notes

### By *Katie Northcutt*

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**Course Information**

Department: Biology Dept.

Level: **Lower Undergraduate** (first introductory course in the major)

Course type: **Lecture, lab, and recitation**

Students: **Majors (and pre-health students)**

Number of Students: **24**

**Module Information**

Original Module Name: The Evolution of Human Skin Color

Link to Original: <https://qubeshub.org/qubesresources/publications/922/1>

**Teaching Notes**

How it fit into the curriculum:

* I included this fairly early into our discussion of evolution, in the first month of the class.
* We had already discussed evolution, natural selection, genetic drift, and gene flow in lecture. We had also discussed the basics of research design and data collection.

Changes I made to the case study:

* I omitted parts 7 and 8, only because of time limitations. I posted these parts on our course website so that students who were interested could explore them further, but did not include them in the assignments.
* I separated the case study up into chunks so that students would take more time on each part and would think through their hypotheses before looking at data. They did parts 1 and 2 for homework, and then we discussed these at the beginning of recitation the following day (along with watching the accompanying video (<https://www.hhmi.org/biointeractive/biology-skin-color>). Then I gave them parts 3 and 4, they worked in pairs to complete the answers to questions. After discussing these parts with the class, they then worked on parts 5 and 6 in pairs and we discussed them the following day at the beginning of lecture.

Assessment:

* After students completed the case study and we had thoroughly discussed it in class, I asked students to write a one-page summary of what they had learned in the case study (what were the main take-home messages and what data supported these conclusions?). I then gave them written feedback on their summaries.
* On the subsequent test, there were two multiple choice questions about the case study. One was about the content of the case study (the selective pressures of folate and vitamin D) and one required them to interpret data (similar to Figure 3).

How it went:

* I thought that the case study worked very well. The strengths were that it inherently is an interesting topic to students, so they were eager to engage with the case study. The video also helped to get them engaged.
* It took much more time than I anticipated. Even though students did the first two parts for homework, it still took about 2.5 hours of class time over the next two class periods to thoroughly complete/discuss parts 3-6. I think that it was worthwhile time, but it was more than I anticipated.
* Students did a good job summarizing the main concepts in the case study. It also helped them become comfortable using evolutionary terminology.

Preparation:

* I spent a few hours preparing for the case study. I didn’t have to prepare anything, but just had to make sure that I was very comfortable with the case study, had watched the video, reviewed others’ teaching notes, and spent time anticipating student questions and pitfalls.

Using the case study in the future:

* I definitely plan to use this case study in the future, and do not plan to make any changes. I now know how much time to allot.