A Scientist Spotlight Featuring Dr. Danielle Brown

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**Course Information**

Department: Biology

Level: **Lower Undergraduate**

Course type: **Lecture**

Students: **Majors and Non-majors**

Number of Students: 28

**Summary:** Students gain exposure to research methods in field biology and literature reviews, while checking their understanding of a figure from an original paper while learning from a counterstereotypical scientist.

**Overview:** Born out of a desire to incorporate diversity, inclusion, and equity themes into undergraduate biology, as well as quantitative biology literacy skills, this lesson plan was composed within a Faculty Mentoring Network that grew out of a Fall Working Group following the Summer 2020 Biome Institute. I implemented this lesson in my Introduction to Conservation Biology course, a three-credit course offered by the Kentucky Community and Technical College System. The goal of this activity is to demonstrate that science is a dynamic, diverse, and challenging process, and that scientists include individuals who may be counterstereotypical to many students’ perceptions. Students will be surveyed on their perceptions of science and who does science, following prompts from Schinske et al. (2016), and assigned to read all or selected portions of Brown et al. (2013). They will be asked to interpret a figure from that paper among other content-based questions. Students will then view a recorded interview with Dr. Danielle Brown, who explains the figure, before revisiting the same prompts from Schinske et al. (2016) and writing a short reflection.

**Learning objectives:**

**Quantitative learning objective(s)**

1. Describe how quantitative reasoning helps biologists understand the natural world (Clemmons et al. 2020).
2. Create and interpret informative graphs and other data visualizations (Clemmons et al. 2020).
3. Interpret the biological meaning of quantitative results (Clemmons et al. 2020).

**Content learning objective(s)**

1. Discuss the details of selected case histories of specific plant or animal extinction, endangerment, or conservation (as explored in class or outside of class). (KCTCS).
2. Describe major techniques applied to the preservation of species, including legislative action, habitat protection and restoration, preserve design, and captive breeding and reintroduction (KCTCS).

**Social justice and/or diversity/equity/inclusion learning objective(s)**

1. Discuss conservation practice and effectiveness with an awareness of societal, cultural, economic, and political obstacles, and evaluate current conservation practice as weighed against future needs (KCTCS).

2. Describe examples of how scientists’ backgrounds and biases can influence science and how science is enhanced through diversity (Clemmons et al. 2020).

3. Identify and describe how systemic factors (e.g., socioeconomic, political) affect how and by whom science is conducted (Clemmons et al. 2020).

4. Describe the roles scientists have in facilitating public understanding of science (Clemmons et al. 2020).

**Lesson sequence:**

1. Students will submit a one to two paragraph response to the “stereotypes prompt” and “relatability prompt” from Schinske et al. (2016).
2. Students will read selected portions of Brown et al. (2013).
3. Students will take a short quiz on content from Brown et al. (2013). See file “Sample Quiz for Scientist Spotlight Featuring Dr. Danielle Brown.”
4. Students will view the recorded interview with Dr. Danielle Brown. See “External Link(s)” section within this Resource.
5. Students will submit a one to two paragraph response to prompts from Schinske et al. (2016) and reflect on their interpretation of the figure from Brown et al. (2013). See file “Sample Assignment to Follow Student Viewing of Interview with Dr. Danielle Brown.”

**Implementation notes:** When this lesson was implemented in an online course during the Spring 2021 semester, I did not include any pre-lesson preparation for students. It may be helpful to incorporate discussions of diversity and inclusion in science prior to lesson implementation. I did not construct formal grading rubrics for student written responses; students were informed that their responses would be graded based on completion, fully addressing all questions, and proper writing mechanics. It is suggested that a grading rubric be provided to students based on the instructor’s expectations.

**References and additional resources:**

Brown, D.D., Kays, R., Wikelski, M., Wilson, R., & Klimley, A.P. (2013). Observing the Unwatchable Through Acceleration Logging of Animal Behavior. *Animal Biotelemetry* *1*(1)**.** <https://doi.org/10.1186/2050-3385-1-20>

Clemmons, A., Timbrook, J., Herron, J., & Crowe, A. (2020).

[BioSkills Guide](http://dx.doi.org/10.25334/156H-T617). [Core Competencies for Undergraduate Biology](https://qubeshub.org/groups/bioskills), (Version 5.0). QUBES Educational Resources. [doi:10.25334/156H-T617](http://dx.doi.org/10.25334/156H-T617)

KCTCS - Kentucky Community and Technical College System. (2004, December). BIO 122 Introduction to Conservation Biology 3 credits. Approved Courses/Curriculum (Final). <https://kctcs.sharepoint.com/:w:/r/sites/AcademicLeadership/senate/_layouts/15/Doc.aspx?sourcedoc=%7B1933E1AC-5494-442A-B769-9F3858C62368%7D&file=BIO%20122.doc&action=default&mobileredirect=true>

Schinske, J.N., Perkins, H., Snyder, A., & Wyer, M. (2016). Scientist Spotlight Homework Assignments Shift Students’ Stereotypes of Scientists and Enhance Science Identity in a Diverse Introductory Science Class. *CBE – Life Sciences Education 15*(3). <https://doi.org/10.1187/cbe.16-01-0002>