TIEE Experiments Submission Form

SUBMISSION INSTRUCTIONS

Complete each section of this submission form. Send the completed Word file as an email attachment to [christopher.beck@emory.edu](mailto:christopher.beck@emory.edu).

*Before you begin:*Please review the [Four Dimensional Ecology Education (4DEE) Framework](https://www.esa.org/4DEE/framework/) and the [submission guidelines](https://tiee.esa.org/misc/submit.html), which illustrate how to incorporate 4DEE in your module. While your module might not include all four dimensions, pay particular attention to *Core Ecological Concepts* and *Ecology Practices* that should be common to all Experiments. We recommend that authors to include at least one other dimension of the 4DEE framework. Your module should encourage students to think across multiple 4DEE dimensions in the interpretation of figures. Dimensions that are not included can be deleted from the Figure Set Homepage template below.

SUBMISSION FORMAT

**Figure Set Homepage**

* **Title:**
* **Author(s):**
* **Institution(s):**
* **Abstract:** < In a short paragraph of 50-100 words, offer a brief overview of the experiment, including the number of lab/class periods needed, and a listing of the activities students will do inside and outside of the classroom.>
* **Four Dimensional Ecology Education (4DEE) Framework**
  + **Core Ecological Concepts**: <include the elements or sub-elements that are considered in the figure set. See <https://www.esa.org/4dee/framework/#core-ecological>. Note that the list of element and sub-elements in the 4DEE framework is not exhaustive. Authors are encouraged to add additional elements or sub-elements as necessary.>
  + **Ecology Practices:** < include the elements or sub-elements that are considered in the figure set. See <https://www.esa.org/4dee/framework/#ecology-practices>. Note that the list of element and sub-elements in the 4DEE framework is not exhaustive. Authors are encouraged to add additional elements or sub-elements as necessary.>
  + **Human-Environment Interactions:** < include the elements or sub-elements that are considered in the figure set. See <https://www.esa.org/4dee/framework/#human-environment>. Note that the list of element and sub-elements in the 4DEE framework is not exhaustive. Authors are encouraged to add additional elements or sub-elements as necessary.>
  + **Cross-cutting Themes:** < include the elements or sub-elements that are considered in the figure set. See <https://www.esa.org/4dee/framework/#cross-cutting>. Note that the list of element and sub-elements in the 4DEE framework is not exhaustive. Authors are encouraged to add additional elements or sub-elements as necessary.>
* **Class Time:** <Class time required for the experiment goes here>
* **Outside of Class Time:** <Time needed outside of class, for example for students to analyze their data, prepare talks, write up results, etc.>
* **Student Products:** <List and briefly explain as needed what are the major products upon which students will be assessed>
* **Setting:** <Explain in a sentence or two where the field work for the experiment needs to be conducted, if there are seasonal issues, and if there will be additional lab work>
* **Course Context:** <State a few details to indicate the type of course in which you use this experiment, and about how many students you teach per class or section at a time using this experiment>
* **Transferability:** <Explain in a sentence or two how transferable this experiment is to other institutional scales (majors vs. non-majors, intro or upper division courses), other geographies or study species, students with disabilities, and how well it would work in pre-college environments. Note: this is a shortened version of the text in the last sub-section of Part 4, below>
* **Acknowledgements:** <Briefly explain the origin of the concept for this experiment: who was inspirational, whose creative activities led to your developing this experiment or unique version of a previously existing experiment "out there," who deserves mention in helping you to get this together and the role they played, and lastly what funding sources supported its development, if any. Please be as inclusive as possible.>
* **Relevant Image:** <Include an image as a separate attachment file that complements or in some way helps to illustrate the submission. In addition, please write a brief figure caption. Lastly, explain what you know about the image copyright? Who took it? Can we get permission to use it? >

**Synopsis of the Experiment**

**Principal Ecological Question Addressed:** <State the major ecological research question posed and tested in the experiment>

**What Happens:** <100-word summary of the major events that occur in the experiment>

**Experiment Objectives:** <Numbered listing of the 3-4 major objectives of the experiment>

**Equipment/ Logistics Required:** <List the major equipment/ logistics required for the experiment>

**Summary of What is Due:** <Summarize the major student products for assessment, i.e., list the major things that students will do, produce, and present or submit for a grade for their performance in the experiment >

**Detailed Description of the Experiment (audience students)**

**Introduction:** <In a 3-10 paragraph essay, introduce the general topic of the experiment to a student audience. The text should be directly usable in a classroom or field lab where the experiment will be taught. >

**Materials and Methods**

**Study Site(s):** <100-word description of the study site(s) >

**Overview of Data Collection and Analysis Methods:** <use topic headers, such as "Week 1… Week 2…”, etc. Briefly describe the methods for data collection and analysis. Embed in this description references to more detailed explanations of specific methods or analyses. The format of this section is flexible and should reflect a lab handout that you would provide to students.>

**Questions for Further Thought and Discussion:** <Provide a numbered list of critical questions that could frame a classroom guided discussion, minute paper, or extended writing assignment involving outside of class research in the literature on the topic of the experiment. Please offer a range of questions ranked from fairly basic to progressively more involved.>

**References and Links:** <Provide an alphabetized list of all literature cited in the text of the experiment, in addition to any other salient literature that you did not cite. Give readers a snapshot of relevant literature pertaining to the ecological question raised in the experiment. Please also provide a linked list of relevant web sites either for research content or background, taxonomy, methods, statistics, etc. See previous TIEE Experiments for the citation format for references and links.>

**Assessment of Student Learning Outcomes:** <Explain to students the general design and methodological details of how their performance will be assessed, i.e. “graded,” in your experiment. Please include classroom ready assessment documents whenever possible (e.g., lab report or presentation format descriptions, grading rubrics, etc, and if you have written follow-up quiz or test questions, please include these, too). Your comments should model authentic assessment practice and the assessment of student higher level thinking skills, which will encourage faculty users to lift and adapt entire elements of your assessment scheme for use in their own classes.>

**Notes to Faculty**

The audience for this section is the community of faculty users of this experiment. Think of this as the “instructor’s supplement” to the experiment handout.

Comments on Challenges to Anticipate and Solve: < Provide a numbered list of the principal challenges that you encounter with your students with this experiment. What are the major categories of problems to solve (and their solutions) in your experiences teaching this experiment?>

1.<\* challenge #1 \*>: <\* description of this challenge and its solution... \*>

2.<\* challenge #2 \*>: <\* description of this challenge and its solution... \*>

3.<\* challenge #3 \*>: <\* description of this challenge and its solution... \*>

# Comments on the Experiment Description

Comments on Introducing the Experiment to Your Students: <Briefly explain how you introduce this experiment to your students. How do you set the stage for the activity to begin? To what extent do you provide any form of theoretical or contextual framework?>

Comments on the Data Collection and Analysis Methods Used in the Experiment: <Briefly provide whatever comments you think would help a faculty to download, adapt, and use this experiment in their courses.>

Comments on Questions for Further Thought: <Provide a numbered list (corresponding to each question you provide above) of whatever comments you think would help a faculty to assess student understanding of the answers to each question. Please do not feel the need to offer your expert answer to each question. Instead, offer whatever advice to faculty would be helpful in guiding their students toward understanding the answers to each question.>

**Comments on the Assessment of Student Learning Outcomes:** <Offer any general or specific advice to faculty that would be helpful in their understanding and using the assessment scheme you described in the previous section. Whereas the ASSESSMENT OF STUDENT LEARNING OUTCOMES presents and describes the assessment scheme, this section should provide “heads-up” advice to faculty stemming from your experiences using that assessment scheme.>

Comments on Translating the Activity to Other Institutional Scales or Locations: <Please comment here on your experiences and/or suggestions about:

(1) translating this experiment to larger scales if you teach at a smaller school and vice versa,

(2) using this lab in different regions of the country or world, in different seasons, or using different study species or systems,

(3) using this activity to teach ecology to students with physical or other disabilities, and

(4) using this activity to teach ecology in pre-college settings (K-12).

A short version of this section should be reproduced on your experiment’s home page in Part 1 under “TRANSFERABILITY.” >

**Student Collected Data from this Experiment**

<Please include real data sets collected by your students using this lab in your courses. Please see previous TIEE Experiments for a range of models on this, as we work to develop a more standardized data archive template. >