What is C.R.E.A.T.E?
C.R.E.A.T.E. is a method for teaching science courses through deep engagement with scientific literature. Developed by Sally Hoskins and colleagues, it has been adapted for a range of introductory and advanced undergraduate biology courses.

Key components of C.R.E.A.T.E:
For each article, students:
Consider: connections between previous knowledge and core concepts in Introduction by creating a concept-linking map
Read: Methods & Results and connect them by cartooning methods for each result
Elucidate the Hypotheses: tested with the data presented in each table and figure
Analyze and Interpret the Data: to provide and explain answers to research questions
Think of the Next Experiment: and diagram the methods and predicted results

How was C.R.E.A.T.E. adapted for Animal Behavior?
- No textbook
- Two-week intensive class on pervasive themes and common misconceptions
- Five 2-3 week case study based modules
- C.R.E.A.T.E. activities used for pre-class preparation and in-class group work
- “Just-In-Time” lectures interspersed with in-class activities and discussions
- Class-designed research projects derived from findings in published studies
- Evaluation: individual and group work, participation, and open-book exams

Student responses to C.R.E.A.T.E:

Strengths
- Not learning from a book
- Learning to read primary literature
- Ability to understand and deeply discuss primary literature
- Application of core concepts to current case studies
- Connections between new and pre-existing knowledge

Challenges
- Not learning from a book
- Too many readings
- Too much time spent on homework

Literature Cited:

Example Module: Learning and Social Transmission of Information

Articles Assigned:

Concept Connections Map:

Methods Cartoon:

Data Interpretation:
(all work shown by L. Johnson)

Next Experiment: Does information from conspecifics change the foraging behavior of the cockroach Blabareus giganteus?
- Students collaborated to design research question & experiment
- Modeled after rat experiment by Galef & Wigmore (1983)
- One lab session spent conducting pilot studies
- Novel results that provide foundation for follow-up thesis studies

Literature Cited: