

## **EEB 4609W/5609**

### **Navigating a Scientific Paper**

**Due in Discussion Sept 30 (grads) or Oct 1 (undergrads) – Bring 2 copies**

Scientific papers can be difficult to read – they are dense, full of unfamiliar terminology, and they are often written in a rather dry style. They contain exciting and important ideas, but sometimes these ideas are obscured by seemingly endless references to statistics and complicated methods. This worksheet is aimed at helping you better navigate the scientific paper, so that you become able to pull out the key ideas on your own. Hopefully, this will make reading scientific papers easier for you in the future.

Using the Del Grosso et al. (2008) reference as your source, please complete the following questions. This assignment is due in *Discussion* and will be scored with a 1, 2 or 3. (1=poor; 2=good; 3=exceptional). Bring 2 copies to class. We will discuss everyone's answers as a class.

Feel free to write your answers on separate sheet of paper if you wish.

#### Introduction

1) What is the main unanswered scientific question that provides the justification for the study?

2) What is the authors' stated objective (this may overlap quite a bit with #1)?

3) Do the authors state a hypothesis (or set of hypotheses)? If so, what is it? If not, do you think they have an implicit (unstated) hypothesis? If so, what is their implicit hypothesis? (Note: you may not always be able to find a stated hypothesis).

#### Methods

1) Is this an observational study, a modeling study, a synthesis of data from other studies, or did the authors conduct an experiment? Note: you may not be able to "pigeon-hole" a paper neatly into just one of these categories.

2) If it is an observational study, how were the data collected (in other words, how did the authors make their observations or otherwise obtain their data), and what kinds of comparisons were made (e.g., among different geographic regions? Among different species?)

3) If an experiment was done,

a) what were the experimental units (in other words, did the authors study plots, individual people, individual animals, flower pots, other?)?

b) what were the experimental treatments that were imposed? What were the controls?

c) how many replicates were included for each treatment?

## Results

Scientists use figures and tables to tell a “story” about their results. Each figure or table either provides some background information that is helpful to understanding how the study was done, presents background information about the study site or system, or presents a result that the authors think is key to telling this story.

For each table and figure in the paper, state what its main message is—ask yourself why a particular figure or table was included. You should be able to state the main message of each in a sentence or two. Note: do not just describe what the figure “shows” – make sure you state the significance of the figure as it relates to the overall objectives of the paper.

## Discussion

- 1) Did the authors achieve their stated objective?
  
- 2) Were the hypotheses supported or not? Explain your answer.
  
- 3) Did the authors discover anything new?
  
- 4) Are you convinced that the results of this study are significant? If so, why? If not, why not?