**How to read and analyze scientific papers from the primary literature**

**Your understanding will be facilitated by taking written notes**

Read each paper more than once; attend to the tables and figures (make sure you understand them all). **TAKE NOTES**

General things to consider:

1-define terms, concepts

2-examine hypotheses-what was the question

3-why were particular methods used given the above question

4-interpret graphs, tables

5-are interpretations of the data persuasive

6-summarize significant points

7-do next

Introduction

1-what are the main questions

2-what background informs the questions

3-are there specific hypotheses (that indicate a direction)

Materials and Methods

1-do the methods permit the authors to address their questions (THIS IS IMPORTANT!)

2-does the proposed analysis of the data make sense

3-understand the statistical and mathematical analyses (if appropriate, identify the dependent and independent variables)

Results

1-what are the results (understand all figures & tables; attend to figure legends)

2-what are significant effects

3-do the methods permit the data reported

Discussion

1-do the authors claim that their results support or do not support their hypotheses

2-how do they interpret their results

3-are their results (given the methods by which they collected their data and the way they analyzed their data) consistent with their interpretation?

4-are there other hypotheses that might be consistent with their results

5-are you persuaded by the authors’ conclusions-why or why not

For each paper, include in your notes:

1-complete this sentence: The thesis of this paper is……

2-what experiments would you DO NEXT?

**How to facilitate a paper discussion**

The facilitator should NOT lecture but rather encourage a lively discussion among the other students. The facilitator should feel at ease calling upon ANYONE in the class to explain, or disagree, or define, or justify, etc. (THIS IS DIFFICULT BUT THE FACILITATOR MUST DO IT). Use the “things to consider” above. Make transparencies or ppt slides of figures, tables, photos, etc.

**Hints for all of us**

DO:

 -participate in the discussion of every paper

 -come to class sufficiently prepared to facilitate whether it’s your turn or not

 -LISTEN TO OTHERS

 -ask questions

 -agree or disagree

 -encourage others

AVOID:

 -dominating the conversation

 -withdrawing from the conversation

 -interrupting others

 -getting side-tracked

 -putting others down