This course changes each year. This year we explore causes and consequences of tropical biodiversity. There is no text; you will learn to download articles from the UIC online library (pp. 4-13). Articles in bold are required reading. References in blue may provide background for lectures but are not required: rely on lectures for material in blue. References in regular font are for personal interest (few of you will use them) and for those who choose the research-paper option. Powerpoint lectures are posted on the course Blackboard Site (access https://uic.blackboard.com/webapps/login/). Essay questions are posted on Thursday, due the next Thursday.

Big pictures (order of articles in bold indicates timing of discussion each week)


Focus on phenomena

Oct 14 EXAM Essay, open book, open articles, open notes; no laptops or equivalents. 150 points
Nov 4-6 Network realities Donatti et al. 2011, Brodie et al. 2009, Sethi & Howe 2009

Change

Nov 25 Anxiety Altizer et al. 2013, McConkey & Drake 2012

Dec 10 3:30-5:30 EXAM Essay, open book, open articles, open notes; no laptops. 150 points (must be confirmed)

<table>
<thead>
<tr>
<th>Exam option</th>
<th>Pts</th>
<th>Paper option</th>
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<tr>
<td>Three assigned 2-4 pagers (50 ea)</td>
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<td>Three assigned 2-4 pagers (50 ea)</td>
<td>150</td>
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<tr>
<td>Exam 1</td>
<td>150</td>
<td>Research paper (review, proposal, model)</td>
<td>300*</td>
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<td>Exam 2</td>
<td>150</td>
<td>or empirical paper developed with me</td>
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<tr>
<td>Class participation</td>
<td>100**</td>
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* Research paper schedule: List of 5-10 potential topics September 9
List culled to 3 potential topics September 23
One page outline of 1 or 2 essays October 14
Due December 10 (Optional early look at draft Nov 25)

** Attends and participates regularly 100 pts; attends often but little participation 75 pts; irregular attendance and contribution 50 pts; neither 0 pts. In my > 35 years of teaching, failure to participate in this kind of class makes a difference of 1-2 letter grades. At least show up (75 of 100 points).
The paper option is for a few (1-6) students to explore a particular issue in ecology, conservation or climate of tropical species or habitats. The paper is usually a critical review, an attempt to answer a specific question using the scientific literature, a modeling exercise, an empirical paper using pre-existing data, or a draft of a research proposal. A review might be 20-30 double-spaced pages plus bibliography; a model might be shorter. The paper must directly reflect topics in tropical ecology. I will discuss each paper with each student as it develops; papers handed in without this discussion throughout the course will not be accepted. David Zaya’s paper in the bibliography started as a term paper. That is a good format for a review.

Handing in the work of others as your own is plagiarism. Such papers get 0 points. Repeat offenders go to the Dean. Use your own head, and your own words. It is now very easy to put questionable papers through a plagiarism evaluation.

Course objectives

This course integrates lecture, discussion and literature. The objectives are to: (1) survey mechanisms, processes and importance of tropical ecology; (2) introduce variations in the scientific method through detailed discussion of articles or other professional literature; (3) sharpen communication skills through discussion and writing about fundamental ideas or empirical literature; (4) learn to use and think critically about professional literature. I emphasize the process of doing and interpreting science, not imparting information. Memorization will be of little use in my courses.
Reading professional literature.

Articles and chapters in professional anthologies are not textbooks. There is nothing to memorize. Use the following to learn to quickly grasp the context, approach, and interpretations of an article or chapter, and see where the study could go and where its limitations lie. This is reading "critically." By mid-course, you should take 20-40 minutes to get the gist of any paper or chapter assigned.

I  Why was it written? (abstract/introduction)
   What is the intellectual/theoretical context?
   What is the paper supposed to show?

II What was the approach? (methods section)
   Observation?
   Experiment?
      field?
      lab?
      whole organisms?
      components of organisms?
      design?
   What is the system?
      Species?
      Place/habitat?
   Limitations? What can the approach/design/system show? What can it not show?

III What were the results? (results section)
   Author's perception of results?
      What are graphs and tables supposed to say?
      What did they say?
   Skeptic's perception
      What is demonstrated beyond question?
      What is questionable?

IV What are the implications? (discussion section)
   How does the study strengthen the research area?
   How does the study change the research area?

V What is NEAT about the study? What from this study provokes useful thought?¹
   Does the SYSTEM have anything special to offer?
   Does the APPROACH have anything special to offer?
   Do the METHODS have special promise for other studies?
   Do the RESULTS nail down an important issue, or suggest other to follow up?
   Is the INTERPRETATION exciting, even if methods fail?

¹ As the adage goes, "Better to light a candle than curse the darkness." You can get lost in darkness-cursing if all you learn how to do is dismember the work of others.
Helpful reading

Use your netid and password to access http://library.uic.edu/ and the e-journals button. You will often have a choice of sources; if one does not work, use another by either browsing (journals, volumes and page numbers) or searching for an author in the journal home page or, for older articles, jstor or other indicated archiving services. I will post some articles used early in the course on blackboard and some hard-to-get items under a course documents file to facilitate things.

Articles listed may offer some take-off points for those who want to write a paper or follow up a personal interest. **Read those in bold font prior to class.** These will be brought up in lecture. Those in blue font may be mentioned in class; those are not assigned – just distill what is talked about in class. Watch for syllabus updates as the course progresses, mostly in the regular-font context articles (which most of you will not find reason to read).


Enserink, M., P.J. Hines, S.N. Vignieri, N.S. Wigginton & J.S. Yeston (eds) 2013. The pesticide paradox. Special Section, Science 341: 759-765 (several papers authored by individuals or groups)


Estrada, C., Rojas, E.I., Wcislo, W.T., & Van Bael, S.A., 2014. Fungal endophyte effects on leaf chemistry alter the in


Hubbell, S.P., F. He, R. Condit, L. Borda-de-Agua, J. Kellner & H. ter Steege. 2008. How many tree species are there in the Amazon and how many of them will go extinct? Proceedings of the National Academy of Sciences, USA 105: 11498-11504.


