

SYLLABUS

NR791 INTRO. TO RESEARCH, 2019

9 AM, FRIDAY; RM 255 TNR

INSTRUCTOR: JAMES COOK

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Text: "**How to Do Ecology**" 2nd edit. by R. Karban and others, 2014.
Available at the Univ. Bookstore for purchase (can't rent).

<u>DATE(S)</u> <u>FOR</u>	<u>TOPIC & READING</u>	<u>DUE DATE FOR</u>
9-6	Course structure Managing your experience, Part 1 Chap 5	---
9-13	"Picking a Question" Chap. 1 Searching for Lit. Study Plan* Rules for Writers [optional]	---
9-20	Experimental Design* [H/O]** Chap. 3; Steel et al #3-6	
9-27	Experimental Design(cont) (same as last period)	Critique Asgn
10-4	Discuss Critique assignment Complete Exp. Design	
10-11	Sampling Quinn & Keogh, pp. 155-57	Exp. Design
10-18	Discuss Exp. Design assignment Statistics: uses, definitions,types [H/O] Measures of central tendency Zar 18-24* [as needed]	---
10-25	Statistics - assumptions Parametric vs. non-parametric Chap. 4	---
11-1	Statistics - inference Brosi & Biber (Elec)	Study Plan1

11-8	Stats - wrap-up & application Discuss Study Plan - Methods Cherry (Elec); Steel et al. #1,2, 7-12, 14	---
11-15	Merging Exp. Design + Statistics	---
11-22	Publish & Peer Review Process McCoy, 1993* Pp. 88-92 in text	---
12-6	"How to Survive ..." Chap.5, Stearns, Huey 1987*	Study Plan2 Methods
12-13	Final hurdles -> Thesis & Defense No reading assignment	---

* Indicates a reading assignment is provided. "(Elec)" means an electronic copy will be provided. NOTE! **Reading assignments are indicated in Bold.**

** A handout (outline) for this topic will be provided

GRADING

Class Preparation & Participation.....	10%
Critique of Study Plan - due 9-27	10%
Experimental Design assignment - due 10-11	12%
Study Plan	
1) Part 1: Intro., Lit. Rev.& Objectives due 11-1 .	38%
2) Part 2: Methods - due Dec. 6th	30%

EXPECTATIONS

A considerably higher level of initiative and performance is expected at the graduate level. This includes the level of preparation for class, and your willingness to contribute to class discussions. More specifically, this means:

1. For assigned readings, you should be able to explain the main points, and any weaknesses. You should be able to do this when you walk into the classroom.
2. Any writing should be a) thoroughly researched (if appropriate), b) logically organized and c) mechanically sound.

LEARNING OBJECTIVES

1. Be able to write an appropriate research hypothesis.

2. Demonstrate the ability to write clearly and concisely in a standard, scientific style.
3. Be able to produce written and verbal evaluations & summaries of articles from the primary literature.
4. Demonstrate the ability to apply principles of experimental design.
5. Understand the various roles of statistics in research, assumptions of parametric tests, differences among various categories of statistics, and the factors that determine the choice of a statistical method.

CITATIONS for PEER-REVIEWED SOURCES USED in CLASS

Brosi, Berry J. and Eric G. Biber. 2009. Statistical inference, Type II error and decision making under the US Endangered Species Act. *Frontiers in Ecology & Environment* 7(9):487-94.

Cherry, Steve. 1998. Statistical tests in publications of The Wildlife Society. *Wildlife Soc. Bull.* 26(4):947-53.

Quinn, Gerry P. and Michael J. Keough. 2002. *Experimental design and data analysis for biologists*. Cambridge Univ. Press, Cambridge. 537 pp.

Steel, E. Ashley, Maureen C. Kennedy, Patrick G. Cunningham and John S. Stanovick. 2013. Applied statistics in ecology: common pitfalls and simple solutions. *Ecosphere* 49(9):1-13.

Zar, Jerrold H. 1984. *Biostatistical analysis*. 2nd edit. Prentice-Hall, Englewood Cliffs, N.J.