

BIOL501 – FIELD BOTANY
Syllabus and Tentative Schedules

Fall 2011

Instructor: Dr. Jordan Marshall, SB 394, (260) 481-6038, marshalj@ipfw.edu

Office Hours: T 9:00-12:00, W 1:00-3:00, or by appointment

Lecture: SB G20, TR 6:00-7:15

Lab: SB303, M 4:30-7:20

Scope of Course: Field botany is the study of plants in a landscape context with focus on classification, structure, and function.

Required Texts

Newcomb, L. Newcomb's Wildflower Guide. Little, Brown, and Company, New York.
ISBN #978-0316604420

Yatskievych, K. Field Guide to Indiana Wildflowers. Indiana University Press, Bloomington.
ISBN # 978-0-253-21420-1

Tekiela, S. Trees of Indiana Field Guide. Adventure Publications, Cambridge, MN.
ISBN # 978-1591931546

Attendance: Attendance of all lecture and lab meetings is required. Any missed assignment deadlines or exams will result in a zero without a make-up opportunity.

Academic Honesty: Academic dishonesty in any form of cheating or plagiarism **will not** be tolerated.

Labs: A plant collection will be due **Monday, November 21**. Collection, identification, and proper mounting will count as a third of your grade (480 points). A detailed assignment and grading rubric will be provided at a later date. Lab reports (8 @ 50 points each), when assigned, will be due the lecture following the next lab session.

Quizzes and Examinations: Plant identification quizzes (8 @ 20 points each) will be given during lab and exams (3 @ 100 points each) will be given during lecture and focus on plant ecology and ecosystem function.

Course Points

Grading Scale (Points and Percent)

Lab Reports (8)	400 points	A	≥ 1296	≥ 90
Exams (3)	300 points	B	1152-1295	80-89.9
Plant Collection	480 points	C	1008-1151	70-79.9
Lab ID Quizzes (8)	160 points	D	864-1007	60-69.9
<u>Participation</u>	<u>100 points</u>	F	< 864	< 60
TOTAL	1440 points			

* Extra credit will **not** be given in this course. Keep up-to-date with deadlines.

* Please communicate any disabilities to me by the end of the first week of classes so that necessary arrangements can be made.

Lab	Topic	Assignment
8/22	Plant Families and Key Terms	Plant Collection
8/29		Quiz 1
9/5	No Lab (Labor Day Recess)	
9/12	Plant Families and Key Terms	Quiz 2
9/19	Soil Moisture	Report Due 9/27
9/26	Light Regimes	Quiz 3; Report Due 10/4
10/3	Wetland Delineation	Report Due 10/11
10/10	No Lab (Fall Recess)	
10/17	Tree Architecture	Quiz 4; Report Due 10/25
10/24	Succession	Quiz 5; Report Due 11/1
10/31	Seed Banks	Quiz 6; Report Due 11/8
11/7	FIRE!	Report Due 11/15
11/14	Plant Collection	Quiz 7
11/21	Plant Collection Due	
11/28	Winter ID	Quiz 8
12/5	Importance Values	Report Due 12/13

Lecture	Topic	Assignment
8/23, 25	Reproduction and Pollination Ecology	Waser et al., 1996
8/30, 9/1	Seed Ecology	Wang and Smith, 2002
9/6, 8	Germination Ecology	Eriksson and Ehrlén, 1992
9/13, 15	Competition Ecology	Tilman, 1994
9/20, 22	Exam 1	
9/27, 29	Herbivory and Defense Ecology	Strauss and Agrawal, 1999
10/4, 6	Plant Strategies	Taylor et al., 1990
10/11, 13	Succession Ecology	Valladares and Niinemets, 2008
10/18, 20	Invasion Ecology	Blossey and Notzold, 1995 Keane and Crawley, 2002
10/25, 27	Exam 2	
11/1, 3	Wetland Community Function and Ecology	Casanova and Brock, 2000
11/8, 10	Forest Community Function and Ecology	Matlack, 1994
11/15, 17	Grassland Community Function and Ecology	Tilman, 1997
11/22, 24	No Lecture (Thanksgiving Recess)	
11/29, 12/1	Rare Community Function and Ecology	Rees, 1995
12/6, 8	Surveying Plant Communities	Hillebrand et al., 2008
12/13	Final Exam 5:45-7:45 pm	

Lab Report Requirements

I. Your name and a descriptive title.

- a. Titles should describe the lab.
- b. Should not be copied from the lab handout.

II. Introduction

- a. Explain why we were there and why the lab topic is important.
- b. Use references to support any statement made. Use previous research to provide a valid reason as to why the study was done.
- c. Do not copy any introductory material from the lab handout.
- d. Do use ideas and concepts from the lab handout to build the introduction

III. Objectives

- a. At the end of the introduction, provide a clear, complete sentence stating what hypothesis we were trying to test or what we were trying to find out.
- b. Simply state “Our objectives were...” or “The objective of this study was to...”

IV. Methods

- a. All methods must be past tense.
- b. Include what we measured, what instruments or supplies used, and how measurements were taken.
- c. Include a brief description of the study site(s). Do not state “We walked across the Ron Venderly Family Bridge to our field site.”
- d. Do not copy from the lab handout.
- e. If you use a statistical test, this must be described.

V. Results and Discussion

- a. We will combine these sections. Since these are combined, present the results and interpret our findings.
- b. Present all tables and figures as required in the handout. Also, include any tables or figures that you think provide a clear description of what we found.
- c. Text is necessary. Do not insert a table or figure as the only entry in the results/discussion.
- d. Reference all tables and figures in the text (Table 1, Fig. 1).
- e. Figures and tables require descriptive titles that are complete sentences. Format of tables and figures must be consistent and clear.

VI. Literature Cited

- a. Provide citations for all references used. Format must be consistent.

Table 1. Comparison of mean species richness (\pm SE) for each site along invasion chronosequence. Means are compared within each stratum via Bonferroni post hoc tests, and significant differences ($P < 0.05$) are indicated by lowercase letters. Percent difference reflects non-invaded vs. long-invaded sites.

Stratum	Non-invaded	Recently-invaded	Long-invaded	% difference
Seed bank	14.50 \pm 1.25 a	10.66 \pm 1.05 a	8.50 \pm 1.38 b	-41.4
Herb	19.00 \pm 1.87 a	23.50 \pm 1.23 a	18.16 \pm 0.99 a	-4.4
Seedling	11.00 \pm 1.57 a	9.83 \pm 1.31 b	7.16 \pm 1.01 b	-34.9
Sapling	8.75 \pm 1.18 a	7.16 \pm 1.30 a	3.66 \pm 1.03 b	-58.2
Overstory Tree	28.50 \pm 3.05 a	30.75 \pm 3.50 a	32.50 \pm 2.75 a	+1.4

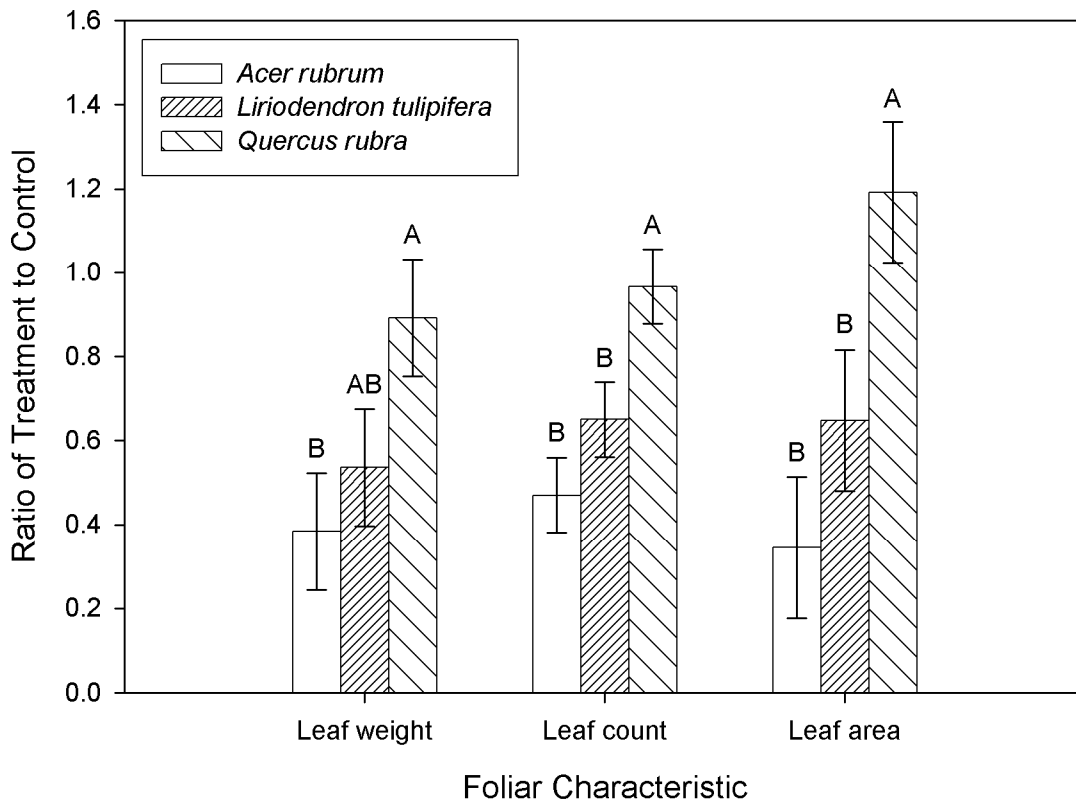


Fig. 1. Ratios for total leaf weight, leaf count, and leaf area between treatments with *Microstegium vimineum* present and control plots with *M. vimineum* absent for *Acer rubrum*, *Liriodendron tulipifera*, and *Quercus rubra*. Unique letters between species indicate significant differences.