

Tropical Botany - BOT 3663
Fall 2016 Syllabus & Schedule—*updated 8/23*

Your instructor: John Cozza, Department of Biological Sciences
Contact: jcozza@fiu.edu (not by Blackboard; include “BOTANY” in subject line)
Office hours in OE 216: Mon 5-6+, Tues 1-3 & 5-6+, Weds 2-3 & 5-6+ (*but not evenings of 9/7, 10/5, 11/2*); after class, or by appointment. Office phone: 7-4932

Lecture and discussion time (required): MWF 1:00 – 1:50 pm
Room: Chemistry & Physics 197

Introduction:

We will explore the amazing diversity of plant life in the tropics—and the research that seeks to explain it. We’ll see and discuss tropical plants’ fascinating adaptations, interactions, evolution, and human uses. On this journey through Earth’s biodiversity hotspots, we will employ active and interactive learning, and you will develop skills in interpreting and communicating scientific hypotheses and evidence.

Prerequisite: BSC 1011 (General Biology 2) or equivalent; *review concepts as needed!*

Biology major distribution area: Organismal diversity

Required materials:

- 1) There is no single text. Chapters from several books will be posted on Blackboard.
- 2) Selections from the scientific literature, to be posted on Blackboard.
- 3) I-clicker device (*not the app!*), available at the bookstore.

Learning objectives: By the end of the course, you will be able to

- Explain tropical climates, and discuss hypotheses for tropical plant diversity.
- Identify and contrast major tropical biomes and plant communities.
- Identify major vegetative and reproductive characters of plants, and use to infer possible phylogenetic homologies.
- Discuss and compare adaptations of tropical plants for growth, survival, reproduction, and dispersal.
- Interpret and synthesize scientific results from the botanical literature, individually and in groups.
- Convey botanical concepts and information in an interesting and accurate presentation about a useful tropical plant; formulate and ask questions about colleagues’ presentations.
- Participate in a service activity that supports tropical plant conservation or education.

Our in-class experiences will include:

- **Interactive lectures** and stories about the diversity and adaptations of tropical plants. We will use i-clickers to enhance interaction and engagement, and you will earn extra credit by participating.
- **Group activities** or discussion, or guest speakers, and accompanying short written assignments.
- **Student group presentations** on useful plants of the tropics.

Course products:

- **3 midterm exams**, plus an optional final (to replace the lowest midterm grade). A midterm exam can only be missed for an *officially documented, FIU-approved reason* (e.g. medical emergency, death in the immediate family, jury or military duty).
- **6 written assignments** (1-3 pages each) due one week after the day of the activity, or as announced. Assignments must be handed in as hard copies and submitted digitally to turnitin.com. Assignments include individual and group activities based on readings, internet research, guest speakers, field observations, etc. **You must attend the relevant classes prepared, and actively participate** to get credit.
- A **6-8 minute illustrated powerpoint presentation** on a useful tropical plant species that you will do with one or two partners. Detailed instructions will be given in class.
- **Daily written class participation**, to be handed in at the end of class. On most lecture/discussion days and *all guest speaker and presentation days*, you will write and hand in a brief feedback. Your written responses will be graded as “full effort” (1 point), “partial effort” (0.5 point) or “minimal effort or copied” (0 point). To earn full credit, you must show clear evidence of thought and engagement, and communicate that in concise, complete sentences. You may discuss your ideas with your neighbor, but your written response must be entirely your own original work.
At the end, your participation grade will be the percentage you earned of the total possible points. You may miss one participation activity without penalty.
Participations count as much as an exam, and are an easy way to raise your grade if you attend every class, or conversely, a sure way to lower your grade if you miss class. You must be present to participate, and you cannot make up participation activities afterwards!
- A relevant half-day **service activity** such as helping with habitat restoration, clean-up, or tree planting (e.g. with TREEmendous Miami, Urban Paradise Guild, or Miami-Dade county); volunteering at a botanical garden (e.g. Fairchild, Gifford Arboretum, FIU Preserve), or giving an educational lesson about tropical botany or conservation to a school or community organization. I will give some suggestions for upcoming activities as the semester progresses. You may choose an activity that I don't mention, but then *please discuss your idea with me in advance*. Don't wait until the last minute to explore this! **You must do an approved and officially verified service activity to receive a grade in the course.** Your last written assignment will be a brief report on what you accomplished in your service activity.

Grading:

Midterm exams (3 @ 15%)	45%
Final exam:	Optional; replaces lowest midterm
Short written assignments (6 @ 5%)	30%
Presentation on a useful tropical plant	10%
Daily written participation	15%
Service activity	Required
Extra credit (clickers)	up to 5% extra

Clicker extra credit will be calculated as follows. You will get 1 raw clicker point for participating in each question, and 1 additional point if you answer it correctly. At the end, your raw point total will be scaled to a maximum of 5% extra credit, with the highest total in the class scaling to the full 5%.

Grades: A = 93-100%, A- = 90-92%, B+ = 87-89%, B = 83-86%, B- = 80-82%,
C+ = 77-79%, C = 70-76%, D = 60-69, F = 0-59%.

A grade of “C” or better is required to pass the course and earn credit in the biology major. Grades will be rounded up or down to the nearest 1%. There will be no curving, and no unearned points will be added to anyone’s grade. The only extra credit available will be that earned by using your clicker, or by participating in and writing about selected enrichment activities announced in class.

How to use turn-it-in:

On the “originality report” that turn-it-in provides, consider each highlight. If it’s coincidental (something anyone could say, e.g. “the causes of tropical rainforest biodiversity”) then it’s OK. But if it’s the specific wording of your author or website, or another student, then you have to remove it. And you can’t just change a few words—turn-it-in will still detect this—you must completely rewrite the highlighted sentence(s) in your own words. *If in doubt—rewrite! The best way to avoid plagiarism is simply not to have the source in front of you (or up on the screen) while you are writing! And you can never cut-and-paste an author’s text into your document--ever!*

General expectations and how to succeed:

- **Read** the assigned chapters & papers thoughtfully in advance of the appropriate lecture or activity.
- **Attend every class on time** and *actively* participate in discussions, interactive questions, and activities. Research by Dr. Helen Young (Middlebury College) showed a 2% lower grade for each missed class in a similar course. Likewise, studies show that active, social engagement with the material produces meaningful, enduring learning.
- **Take good lecture notes**, *preferably handwritten*. Indicate any areas of difficulty to look up after class. Structure your notes as lists, outlines, concept maps, or in some other form that is useful to you. This initial processing of the information begins the process of making it your own, aka *learning* it!
- **Ask questions**; ask for clarification ASAP. There are no stupid questions!
- **Help your neighbor** and contribute to the group. If you help each other, everyone will do better including you!
- **Review concepts** ASAP after class, using the readings, links on the slides, and other resources to clarify any hazy areas. Try to find the answers to your questions yourself, or through active participation in a study group. Assess your knowledge continuously.
- **Come to office hours** with any questions you are still unsure about, or just to talk about tropical plants!
- **Read all course emails and announcements** on Blackboard! You are responsible for all information in them, as well as anything announced or posted in class.

Honor and safe place policies:

As scientists and scholars, we hold ourselves to the highest standards of integrity. The FIU honor policy will apply fully to our work in this class. Any cheating on exams or plagiarism on written work will result in a grade of F for the assignment and, if warranted, the course. Using more than one clicker will result in temporary confiscation of the outlaw clicker, and permanent loss of clicker points for the owner and perpetrator. All course materials are for your use only—do not share, post, or sell (it's stealing). *Serious dishonor or cheating will result in academic misconduct charges.*

Likewise, as a progressive learning community, FIU does not tolerate sexual harassment or any other civil rights violation against any student or course personnel.

Academic misconduct definitions and procedures are detailed at:

<http://academic.fiu.edu/academicbudget/misconductweb/1acmisconductproc.htm>.

FIU's student code of conduct, and policies on discrimination and sexual harassment, are available at: <http://regulations.fiu.edu/regulation>.

This syllabus and the schedule below, particularly the time devoted to each topic, may change at any time to better meet the needs of the group, or due to unforeseen circumstances. All changes will be announced in class or via Blackboard. The most current version will be kept updated on Blackboard, so check there if in doubt.

Week	Date	Topic, written activity, or group presentation	Reading due (all on Blackboard)
1	22 Aug 24 26	Course introduction The tropics and climate The tropics and biodiversity	Syllabus (asap) Lambertini chaps. 1, 2 Lambertini chaps. 3, 4
2	29 31 2 Sept	Plant phylogeny: concepts & overview Phylogeny and diversity of tropical plants Phylogeny and diversity of tropical plants	What is phylogeny? / Genetic connections (TOL) + What is cladistics? (Clos 1996) Embryophyte & Gymnosperm (Wikipedia) Flowering plant (Wikipedia)
3	5 7 9	Labor Day holiday—no class Plant morphology 1) Tropical plant families: virtual safari	Shumway (2009), Cocks (2014), Nelson (2012) Bring computer to class
4	12 14 16	Plant architecture Plant safari presentations: (#1-7) Plant safari presentations: (#8-14)	Tomlinson (1983) By Tues PM: Upload safari powerpoint By Thurs PM: Upload safari powerpoint
5	19 21 23	Plant safari presentations: (#15-21) Lowland rainforest: structure EXAM #1 on weeks 1-4	By Sun PM: Upload safari powerpoint Kricher chap. 3
6	26 28 30	Lowland rainforest: structure Guest speaker: Jason Downing, "Orchid conservation" Useful tropical plants: presentation example; Lowland rainforest: species diversity	Kricher chap. 3 Gravendeel (2004), Swarts (2009) Vietmeyer (2008); Kricher chap. 5
7	3 Oct 5 7	Lowland rainforest: species diversity Rainforest ant plants; 2) Evolution of diversity in <i>Macaranga</i> Tropical dry forest	Kricher chap. 5 Davies (2001), Federle (2005), Linsinmair (2001), Nomura (2001) Holzman chap. 4
8	10 12 14	Tropical dry forest Savanna, part 1 Useful plant presentations (#1-5)	Holzman chap. 4 Solbrig (1996)
9	17 19 21	3) Guest speaker: Dr. Javier Ortega, "Plant diversity in the Caribbean" (Mon & Weds) Useful plant presentations (#6-10)	Adams (1997) Sat 10/22: Fairchild visit (optional)
10	24 26 28	Savanna, part 2 EXAM #2 on weeks 5-9 Useful plant presentations (#11-15)	Solbrig (1996), Rapoza (2014)
11	31 2 Nov 4	Savanna; Thorn forest 4) Ask 20 questions: meet at FIU Preserve Useful plant presentations (#16-20)	WWF (2014) Fox (2014)
12	7 9 11	Thorn forest and desert Veterans' Day holiday—no class Useful plant presentations (#21-25)	Lambertini ch. 10, Porembski (2007)
13	14 16 18	Cloud forest; Mountain and river 5) PBL: Design an arboretum exhibit! Useful plant presentations (#26-30)	Kricher chap. 12: pp. 422-463 Jon Coe (2004); Villagra-Islas (2011)
14	21 23 25	Mangrove, beach, and seagrass Pollination & dispersal Thanksgiving holiday—no class	Kricher chap. 12: pp. 463-468; Araujo (2004), Atwell (2010), Heck (2008) Kricher chap. 7: 238-266
15	28 30 2 Dec	The un-plants: parasites and carnivores Forest conservation discussion EXAM #3 on weeks 10-15	Pavlovic (2012); Moran (2006), Bellot (2013) Boucher (2011) ch. 1, Phalan (2013) 6) Report on service activity due
Finals	5 Dec	Optional or make-up FINAL EXAM (cumulative): 12-2 pm in C&P 197	

Course readings and resources

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