

Tropical Botany - BOT 3663
Fall 2018 Syllabus & Schedule—*updated 8/24*

Your instructor: John Cozza

Contact: jcozza@fiu.edu (not by Canvas; include “BOTANY” in subject line)

Office hours in OE 216: **Mon 5-6+, Tues 11-12, 2-3 & 5-6+, Weds 2-3 & 5-6+** (*but not the evenings of 9/5, 10/3, and 11/7*) and **Fri 5-6+**; after class, or by appointment. Office phone: 305-348-4932

Lecture and discussion time (crucial & required): MWF 1:00 – 1:50 pm

Room: Green Library 165

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 (including human uses), and evolution. 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 text. Articles and chapters from several books are posted on Canvas. *This means that your readings are handpicked to go with each lecture or activity!*
- 2) Selections from the scientific literature, posted on Canvas.
- 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 major vegetative and reproductive characters of plants, and use to infer possible phylogenetic homologies.
- Identify and contrast major tropical biomes and plant communities.
- Discuss and compare adaptations of tropical plants for growth, nutrient acquisition, defense, 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.

Demonstrating and applying your learning:

- **3 exams:** two midterms and a cumulative final. Exams will be all scantron questions, and will cover what we do in class, including the relevant material from the readings. About half of the final will cover the new material since exam 2, and the other half will be divided between exam 1 and exam 2 material. *If you miss an*

exam for a serious and urgent reason (medical emergency, death in the immediate family, jury or military duty, etc.) you must *officially document* it and let me know ASAP. If you miss a midterm and document it, the final exam grade would also become the make-up grade for the missed midterm. If you miss the final and document it, you would receive an IN grade, and then you must take a written (essay questions) make-up exam in the spring semester.

- **5 written assignments** (1-3 pages each; one is a labeled powerpoint) due 1-2 weeks after the day of the activity, as shown on the schedule. 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, and field observations. Details will be given in class. **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 two partners. Details 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 student 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—see me if there are further serious and urgent conflicts. *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 or tree planting (e.g. with TREEmendous Miami, Urban Paradise Guild, or Miami-Dade county); volunteering at a botanical garden (e.g. Fairchild Garden, 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 and learned in your service activity.

Grading splits:

Midterm exams (2 @ 15%)	30%
Final exam:	20%
Short written assignments (5 @ 5%)	25%
Presentation on a useful tropical plant	10%
Daily written participation activity	15%
Service activity	Required
Extra credit (clickers)	up to 5% extra

We will use **clickers** every day to enable active learning, gauge your understanding, and stimulate discussion. Clicker extra credit will be calculated as follows. You will earn 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%.

Grade scale: 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 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:

Turn-it-in is a tool to help you make sure that all of your written work is original. Consider each highlight on the “originality report” that turn-it-in provides. 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 to not have the source in front of you 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! *Come see me as soon as you know you are struggling, or not doing as well as you hoped!*

- **Read all course emails and announcements** on Canvas! You are responsible for all information in them, as well as anything announced or posted in class.
- **Take care of yourself:** Eat well, drink water, sleep, exercise, go outside!

Honor 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.
- *Signing someone else's name* on a class sign-in sheet or written participation activity will result in loss of participation points for both people.
- *Using more than one clicker* will result in temporary confiscation of both clickers, and permanent loss of clicker points for both the owner and perpetrator.
- All course materials are for your use only—do not share online or post (copyright violations), or sell (that would be stealing).
- *Serious dishonor or cheating* will result in academic misconduct charges.

As a progressive learning community, we respect and protect the civil rights of everyone, regardless of gender, race, ethnicity, culture, place of origin, or disability.

Academic misconduct definitions and procedures are detailed at:

<http://integrity.fiu.edu/misconducts.html>, and in the [FIU Student Handbook](#).

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

Accommodations for disabilities are arranged through the Disability Resources Center. See: <http://studentaffairs.fiu.edu/get-support/disability-resource-center/index.php>.

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 Canvas. The most current version will be kept updated on Canvas, so check there if in doubt.

Week	Date	Topic, written activity, or group presentation	Reading due (all on Canvas)
1	20 Aug 22 24	Course introduction The tropics and climate The tropics and biodiversity	Syllabus (asap) Lambertini chaps. 1, 2 Lambertini chaps. 3, 4
2	27 29 31	Plant phylogeny: concepts & overview <i>Aug 27: add/drop; Aug 28: \$\$ due</i> Phylogeny and diversity of tropical plants Build a phylogeny	What is phylogeny? / Genetic connections (TOL) + What is cladistics? (Clos 1996) For review: Embryophyte, Gymnosperm, Flowering plant (Wikipedia) <i>Bring printed phylogeny (Canvas)</i>
3	3 Sept 5 7	Labor Day holiday—no class Plant morphology: vegetative Plant morphology: reproductive	Shumway 2009 Cocks 2014, Nelson 2012
4	10 12 14	1) Tropical plant families: virtual safari Plant architecture Lowland rainforest structure	<i>Bring computer to class</i> Tomlinson 1983 Kricher chap. 3
5	17 19 21	Lowland rainforest structure Plant safari presentations: (#1-7) Plant safari presentations: (#8-13)	Kricher chap. 3 <i>By Tues 8 PM: Upload OKed powerpoint</i> <i>By Thurs 8 PM: Upload OKed powerpoint</i>
6	24 26 28	Plant safari presentations: (#14-19) Plant safari presentations: (#20-25) EXAM #1: climate – architecture	<i>By Sun 8 PM: Upload OKed powerpoint</i> <i>By Tues 8 PM: Upload OKed powerpoint</i>
7	1 Oct 3 5	Useful tropical plants and sample presentation Rainforest ant plants; Lowland rainforest—why so diverse? Guest speaker, Dr. Jason Downing: “Orchids”	Vietmeyer 2008 Grieg 2015; Kricher chap. 5 Roberts 2008
8	8 10 12	Lowland rainforest—why so diverse? Lowland rainforest—why so diverse? Dry forest	Kricher chap. 5 Kricher chap. 5 Holzman chap. 4
9	15 17 19	Dry forest, Introduction of “Ask 20 questions” activity 2) Ask 20 questions: meet at FIU Preserve (due 11/5) Savanna	Holzman chap. 4; Fox 2014 Fox 2014 Solbrig 1996
10	22 24 26	Savanna EXAM #2: lowland rainforest & dry forest Savanna	Solbrig 1996 Solbrig 1996, Rapoza 2014
11	29 31 2 Nov	3) Guest speaker, Dr. Javier Ortega: “Plant diversity in the Caribbean” (Mon & Weds; due 11/14) Useful plant presentations (#1-5)	Adams 1997 <i>Oct 29: last DR</i>
12	5 7 9	Thorn forest, desert and inselbergs Useful plant presentations (#6-10) Mountain: cloud forest and elfin forest	WWF 2014, Lambertini ch. 10, Porembski 2007 Kricher chap. 12: pp. 422-437
13	12 14 16	Veterans’ Day holiday—no class 4) Design an arboretum exhibit! (due 11/30) Useful plant presentations (#11-15)	 Jon Coe 2004; Villagra-Islas 2011
14	19 21 23	Mountain (shrub & grassland) and river Useful plant presentations (#16-20) Thanksgiving holiday—no class	Kricher chap. 12: 437-463
15	26 28 30	Mangrove, beach, and seagrass Useful plant presentations (#21-25) Tropical plant conservation—why and how? 5) Report on service activity due	Kricher chap. 12: pp. 463-468; Araujo 2004, Atwell 2010, Heck 2008 Boucher 2011, Boucher 2014, Audissou 2007
Finals	3 Dec	FINAL EXAM: savanna – conservation + cumulative, 12-2 pm in GL 165	

Course readings and resources

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