Plant Genome Assembly and Annotation
BOT 4935 / BSC 2930
Spring 2025 TENTATIVE Syllabus

INSTRUCTORS

Dr. Pamela Soltis (she/her)- Distinguished Professor & Curator - psoltis@flmnh.ufl.edu
Dr. Douglas Soltis (he/him) - Distinguished Professor - dsoltis@ufl.edu
Dr. Shengchen Shan (he/him) - Postdoctoral Researcher – shan158538@ufl.edu

OBJECTIVES AND LEARNING GOALS

1. Develop a research question: formulate testable hypotheses and state predictions.
2. Implement tools to assemble, annotate, and interpret plant genomes.
3. Analyze data to create and interpret informative data visualizations.
4. Communicate methods and results to other researchers.

DAYS	TIME OF DAY	LOCATION
Monday	12:50-1:40PM	Biodiversity Institute-CSE E252
Wednesday	12:50-1:40PM	Biodiversity Institute-CSE E252

COURSE DESCRIPTION

Are you curious about what makes a banana different from a pine tree, or a grass different from an oak? The keys to understanding species differences are encoded in their genomes, and now it is possible to unlock the genomic secrets that make each species unique. In this class, we will sequence the genomes of species of trees from McCarty Woods on the UF Campus and apply state-of-the-art computation and bioinformatics to assemble these genomes and annotate their genes. No experience needed!

The course will introduce students to the structure, function, and diversity of plant genomes, and it will provide an authentic research experience, along with basic training in research skills, ethics, objectivity & bias, and research communication. Each week the class will meet for two (2) one-hour classes as a group for basic instruction, but most of the learning will be achieved through hands-on research.

POLICIES

Your success in this class is important to us. We will all need accommodations because we all learn differently. If there are aspects of this course that prevent you from learning or that form barriers to your inclusion, please let us know as soon as possible. Together we'll develop strategies that can enable you to succeed in the course. You are also welcome to contact Student Accessibility Services to begin this conversation or to establish accommodations for this and/or other courses.

Classroom Etiquette

- Please arrive to class on time and plan to stay for the full period of the class.
- If you miss a class, you are responsible for getting assignments and other information you missed.

- Always be neat and clean up your area completely at the end of class.
- Discussion in class is expected, but always interact with instructors and other students in a respectful and civil manner.

Classroom Equity (from www.educationevolving.org)

- Our vision is that all students have opportunities for student-centered learning, which is characterized as learning designed based on each individual student's needs.
- We recognize and acknowledge that significant disparities in educational opportunities and outcomes exist among students based on many historical and current factors, and we seek to help ameliorate the effects of these disparities by providing individualize learning opportunities.

COURSE MATERIALS

1. Internet access

ASSIGNMENTS

- **Written Summaries and Scripts**
    - Written summaries and scripts will be turned in through Canvas.
    - These short write-ups will act as scaffolds for your final project.
    - Instructor feedback will be provided for both the summaries and scripts.
    - We expect that feedback is taken into consideration before turning the final project with suggested changes made and/or corrected.
- **Poster/Presentation**
    - Part of this CURE will include presenting your work at the Undergraduate Research Symposium in April.
    - You will create a poster which will be printed and presented during the assigned times of the Research Symposium.
    - This poster may also be shared more broadly with other Courses at Universities across the US.
- **Final Report**
    - The final report will consist of:
        - A written summary of your methods and results as well as an introduction and discussion. Your methods will consist of your modified summaries from the weeks prior.
        - All scripts used.

OPEN HOURS

Open hours are an opportunity for you to connect with us, a chance to ask clarifying questions about content and/or scripts, explore what you may want to do after you graduate, and find support. We will host open office hours on many Fridays, but we also are more than happy to meet by appointment.

LAND ACKNOWLEDGMENT

We acknowledge the land we are meeting on is the territory of many nations, including the Seminole and Timucua peoples.

GRADING

We expect that everyone who submits their assignments will achieve passing grades in this course.

Assignments	Number	Points	Total Points
Written Summaries	5	20	100
Final report	1	200	200
Poster	1	100	100
Presentations	2	50	100
Participation	1	100	100
			600

SEMESTER SCHEDULE

The general course syllabus for weekly meetings follows:

Week #	Date	Topic
1	01/13	Introductions (All)
1	01/15	Research Skills – Genomes (D. Soltis)
2	01/20	Holiday No Class: Martin Luther King Jr. Day
2	01/22	Research Skills – Genomes (P. Soltis)
3	01/27	Guest Lecture – Alex Harkess
3	01/29	Research Skills – McCarty Woods tour
4	02/03	HiPerGator Intro – M. Gitzendanner
4	02/05	Research Skills - R Intro (Mabry)
5	02/10	Species of to be sequenced (D. Soltis)
5	02/12	Data reproducibility/responsibility (P. Soltis)

6	02/17	Assembly
6	02/19	Assembly
7*	02/24	Assembly
7*	02/26	Assembly
8*	03/03	Assembly
8*	03/05	Assembly
9	03/10	Assembly
9	03/12	Assembly
10	03/17	Spring Break
10	03/19	Spring Break
11	03/24	Assembly
11	03/26	Assembly
12	03/31	Practice poster presentations
12	04/02	Practice poster presentations
13	**04/08 TUES**	2025 Spring Undergraduate Research Symposium 1-5PM
13	04/09	Interpretation
14	04/14	Interpretation
14	04/16	Interpretation
15	04/21	Interpretation
15	04/23	Interpretation
16	04/22	Final Report Class Time
16	04/24	Final Report Class Time
FINAL	04/30 (10-12)	Putting it all together; What do the data say collectively?

* Pam and Doug will be in Africa

HIPERGATOR NEW-USER TRAINING

https://help.rc.ufl.edu/doc/New_user_training