

INXX 4998: Structural Properties and Uses of Bamboo

Instructor and Course Information Sheet

1. General Instructor and Course Information

Instructor Information	Christopher Papadopoulos Office: OF-402 christopher.papadopoulos@upr.edu Pablo Acevedo pablo.acevedo@upr.edu	Office Hours: <i>By request</i>
Meeting times	LW 4:00PM – 6:00PM, default Alternative arrangements for laboratory work and field trips, as needed	
Textbook	References TBA	
Moodle	https://ecourses.uprm.edu/course/view.php?id=620	
Grade Weights	Class/Laboratory Attendance & Participation:	10%
	Laboratory Skills (Notebook, Oral Demonstrations, etc.):	30%
	Assignments:	25%
	Independent Research Project:	35%
Grade Basis	A: 90+ B: 80-90 ⁻ C: 70-79 ⁻ D: 60-69 ⁻ F: <60	

2. Course Topics

- Review of essentials of Mechanics of Materials
- Application of Mechanics of Materials to the design and set-up of the four principal mechanical tests: tension, compression, shear, and bending, with emphasis on how this is done for testing bamboo
- Specimen preparation, test set-up, running tests, and data analysis
- Examination of failure modes of specimens (qualitative)
- General study of existing information on structural and material uses of bamboo and related data
- Independent research related to mechanical, material, architectural, or other approved applications of bamboo

3. Course Goals

Emerging from the mastery of the course topics, the broad goals of this course are as follows:

- To become skilled experimentalists who are able to interpret outcomes of tests, including the ability to identify unreliable outcomes and to make appropriate modifications to the testing procedures to improve the outcomes
- To appreciate the historical and potential future role of bamboo in construction and other industry, particularly as it applies in Puerto Rico
- To improve research skills so as to be able to write technical articles and research proposals at an “apprentice” level
- To understand bamboo as an “appropriate technology”, and the larger enterprise of engineering research as being embedded in various societal contexts.

4. **Instructional Strategy**

Regular class meetings will be supplemented or interchanged with appropriate field trips and laboratory work, as scheduled by agreement as the class progresses. The instructors and students will jointly agree on an equivalent total number of accumulated hours to regulate the effort required to complete the course tasks.

5. **Evaluation of Student Work**

Student work will be evaluated on the basis of correctness, reasonableness, and effort, in the multiple formats of written work, oral presentation, and laboratory work. The independent research project may include response from a jury of peers, faculty, and/or other experts.

Class Environment, Safety, and Academic Conduct

The classroom is a sacred space in which we dedicate ourselves to our common purpose. Please **do not use electronic devices** unless use is directly related to coursework. **All members of the class are entitled to courtesy and respect.** Disrespect on the basis of a person's identity (race, religion, gender/sexual orientation, or special needs, etc.) will not be tolerated. Please notify the instructor if any concerns arise or if you require any special accommodations. **Your attendance is required** in order to create a collaborative learning environment, but you may be excused from class in cases of illness, religious observance, sanctioned university activities, emergencies, etc. (documented in writing and in person, and in advance when possible). Make-ups for missed exams/quizzes/work will be given at the instructor's discretion.

As this is a laboratory class, students are asked to adhere to the following safety requirements:

- Wear long pants and closed-toe shoes when working in the laboratory.
- Wear safety goggles when conducting laboratory tests and operating other machinery.
- Wear work gloves when conducting harvests.
- Be sure that loose clothing, long hair, jewelry, etc. are tied back and do not pose hazards to interact with machinery or testing equipment.

All students are expected to adhere to common standards of academic integrity, including those specified in the **Código de Conducta Estudiantil** (<http://estudiantes.upr.edu/modalfiles/codigo-de-conducta.pdf>). For this class:

- All regular assignments and laboratory work are presumed to be open resource, but students are asked to cite instances when significant help was received from another source.
- Activities for which work must be done independently and/or with partial resource restriction will be clearly announced; generally independent work will be assessed on the basis of oral presentations or laboratory demonstrations.
- The general expectation is that the student is expected to take full academic responsibility (i.e., the ability to justify and reproduce the work) for any work that is submitted with his or her name.