PS511: Seed Biology and Physiology (1 credit)

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Course description:
Introduction of seed as a biological system: its formation, dormancy, germination and viability. Discuss on how these processes are regulated by internal physiology and environmental conditions. In-depth learning of specific topics about seeds through student-led lectures. Application of knowledge about seeds to problem solving by crafting research proposals.

Time and location:
Class meets Monday 11:45AM- 12:35PM in MGH-212B

Textbook:
No textbook is required for this course. "Seeds: Physiology of Development and Germination" by Bewley and Black, second edition, is recommended as a general seed biology textbook.

University's honor statement:
"An essential feature of the University of Tennessee is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity."

Evaluation and grades:
Each student will be graded based on this ratio: 30% lecture presentation, 10% class participation, and 60% grant writing. The lectures will be assessed by criteria including clarity, scientific accuracy, evoking discussions, and overall quality of presentation. Class participation includes both class attending and involvement in active class discussions. The grant proposal, which is required to focus on a topic related to seeds, will be evaluated based on the significance of the identified problem, clarity, rational and soundness of the proposed experiments.

Grading (%)	≥ 93 = A	90-92 = A-
	87-89 = B+	83-86 = B
	80-82 = B-	77-79 = C+
	73-76 = C	70-72 = C-
	67-69 = D+	63-66 = D
	60-62 = D-	< 60 = F

Lecture schedule for PS511 in Spring 2022

Date	Topic
Jan. 24	Overview of the course: why a seed course? The topics and format
Jan. 31	Seed development I: flowering control and flower development
Feb. 7	Seed development II: pollination and double fertilization
Feb. 14	Seed development III: embryogenesis
Feb. 21	Seed dormancy I: types of dormancy
Feb. 28	Seed dormancy II: molecular mechanisms
Mar. 7	Seed dormancy III: dormancy breaking
Mar. 14	*Spring break*
Mar. 21	Seed germination I: imbibition and germinative events
Mar. 28	Seed germination II: molecular mechanisms
Apr. 4	Seed germination III: hormone regulation
Apr. 11	Seed viability: longevity and deterioration mechanisms *(Instruction on grant proposal will be given in this class)*
Apr. 18	*Student presentations:*
Apr. 25	*Student presentations:*
May 2	*Student presentations:*
May 9	*Student presentations:*
May 12-18 Exam week	Grant proposal due on May 16, 2022