



Biochemistry/Botany/Genetics 840: Regulatory Mechanisms in Plant Development

Fall 2018, 3 credits

Meets 1:20-2:35 Tuesdays and Thursdays, 350 Birge Hall

Instructors:

Richard Amasino

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Course description:

Molecular mechanisms whereby endogenous and environmental regulatory factors control development; emphasis on stimulus perception and primary events in the signal chain leading to modulated gene expression and cellular development.

Requisites: Graduate standing

Course designation: Grad 50%- Counts towards 50% graduate coursework requirement

This class meets for face-to-face instruction for two 75-minute class periods each week over the fall semester and carries the expectation that students will work on course learning activities (reading, writing, problem sets, studying, etc.) for about 3 hours out of the classroom for every class period. The syllabus includes more information about meeting times and expectations for student work.

Course learning outcomes: Students in this course will:

- Gain familiarity with the plant life cycle and major issues in plant development
- Gain familiarity with experimental approaches to study plant development
- Gain skills in data analysis and interpretation
- Be able to read the primary literature more critically

Grading: Students will be graded according to participation in lectures and discussions, and quality and timely submission of written assignments. Students will be assigned readings from the primary literature and can expect approximately one short written assignment per week, to be submitted by e-mail, with the due date determined by each individual instructor.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

McBurney Disability Resource Center syllabus statement: “The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.” <http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php>

DIVERSITY & INCLUSION

Institutional statement on diversity: “Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.” <https://diversity.wisc.edu/>

ACADEMIC INTEGRITY

By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison's community of scholars in which everyone's academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to studentconduct.wiscweb.wisc.edu/academic-integrity/.

Lecture Schedule

Date	Instructor	Lecture Topic
Sept.6	Fernandez	Introduction to development systems
11	Fernandez	Embryos: pattern formation and morphogenesis
13	Fernandez	Embryos: differential gene expression
18	Fernandez	Embryos: dessication, dormancy & germination
20	Fernandez	Paper Discussions
25	Masson	Methods in Forward Genetics
27	Masson	Methods in Reverse Genetics
Oct. 2	Masson	Auxin transport and Signaling
4	Masson	Root meristems, Growth and Development
9	Masson	Tropisms I
11	Masson	Tropisms II
16	Masson	Root Hydropatterning
18	Masson	Paper Discussions
23	Sussman	TBD
25	Sussman	TBD
30	Doebley	The evolution of development during crop domestication
Nov. 1	Ané	Symbiosis and nodule development
6	Gilroy lab	Calcium and electrical signaling
8	Barker	Gibberellin biosynthesis, DELLA degradation , and the Green Revolution
13	Fernandez	Shoot Apical Meristems
15	Fernandez	Flower development
20	Fernandez	Gametogenesis
22		THANKSGIVING
27	Fernandez	Fertilization
29	Fernandez	Self-incompatibility
Dec. 4	Amasino	TBD
6	Amasino	TBD
11	Amasino	TBD

