BIOLOGY 326 – FROM MOLECULES TO ECOTYPES: *ARABIDOPSIS*
COURSE OUTLINE - FALL 2015 (TWF, 1:30pm, CLE B215)

Course Instructors:	**Dr. Patrick von Aderkas**	**Dr. Jürgen Ehlting**
Office:	Petch 052a, ph 250-721-8925	Cunn. 159a, ph. 250-472-5091
email:	pvonader@uvic.ca	je@uvic.ca

Laboratory Teaching Assistant: **Kate Donaleshen**
Office: Petch 052, ph 250-721-8926
Email: kdonales@uvic.ca

Course Description:
Plant cell, tissue and organ differentiation, and the evolution of ecotypes explained through molecular and genetic tools developed using model plants such as Arabidopsis. The genetics of anatomy, development, physiology and ecological differentiation of plants. The role of model species in studies integrating cell biology, anatomy, physiology and ecology. Lab sections will emphasize plant mutants in comparison to wild types.

Required texts:
1. A Smith *et al.* 2010 *Plant Biology.* Garland Science, New York NY ppbk US $135 ebook US $88
2. M Northey and P von Aderkas 2015 Making sense in the life sciences. OUP, ppbk (priceless)
On Amazon cheaper new & used books are available for ready money. There's a 2010 edition, too.

DATE		**LECT/*LAB***	
Sept	9-W	1. (JE)	Introduction to the model system Arabidopsis
	11-F	2. (JE)	Background on mutants, genetics, and molecular tools
	11-F	***Lab 1 (JE)***	***Sowing seed for experiment (Lab 7)***
	15-T	3. (JE)	Mutants, genetics, molecular tools and plant cell structure
	16-W	4. (JE)	Embryogenesis I
	18-F	5. (JE)	Embryogenesis II
	18-F	***Lab 2 (PvA)***	***Chop and stain***
	22-T	6. (JE)	Embryogenesis III
	23-W	7. (JE)	Embryogenesis IV
	25-F	8. (JE)	Root development I
	25-F	***Lab 3 (JE)***	***Embryo development and embryo-lethal mutants***
	29-T	9. (JE)	Root development II
	30-W	10. (PvA)	Vascular architecture: cell types
Oct	2-F	11. (JE)	*In silico* tools
	2-F	***Lab 4 (JE)***	***Arabidopsis* in silico *tools***
	6-T	12. (JE)	Vascular architecture: genetics
	7-W	13. (PvA)	Branching I
	9-F	***no lecture***	
	9-F	***no lab***	***Thanksgiving weekend***
	13-T	14. (PvA)	Branching II
	14-W	15. (PvA)	Branching III
	16-F	16. (PvA)	Leaves
	16-F	***Lab 5 (JE)***	***Vascular differentiation***
	20-T	**MIDTERM**	50 minutes – essay style - 20%
	21-W	17. (PvA)	Internodes

DATE		LECT/*LAB*	
Oct	23-F	18. (JE)	Transition from vegetative to reproductive phase I
	23-F	***Lab 6 (PvA)***	***Write like an angel; edit like a demon I***
	27-T	19. (JE)	Flowering transition II (day-length response)
	28-W	20. (JE)	Flower development I (SAM to IM to FM transition)
	30-F	21. (JE)	Flower development II: ABC model
	30-F	***Lab 7 (JE)***	***Variation in stress treatment response***
Nov	3-T	22. (PvA)	Cell division and elongation in pattern formation
	4-W	23. (PvA)	Nectaries
	6-F	***no lecture***	
	6-F	***no lab***	
	9-11	**READING BREAK**	
	13-F	24. (PvA)	What virtue in a virtual plant?
	13-F	***Lab 8 (JE)***	***Flower development in wild type and ABC mutants***
	17-W	25. (PvA)	From genotype to phenotype
	18-F	26. (PvA)	a plant-insect coevolutionary key innovation in the Brassicales
	20-T	27. (PvA)	How to make a sublime presentation for the ages
	20-F	***Lab 9 (PvA)***	***Write like an angel; edit like a demon II***
	24-T	28. (PvA)	Evolutionary and ecological genomics
	25-W	29. (PvA)	In a common garden
	27-F	***Lab 10***	**Essays due at the beginning of lab. Hardcopies, please.** ***STUDENT PRESENTATIONS***
Dec	1-T	30. (PvA)	Metabolomics: the chemistry of ecology and genetics
	2-W	31. (JE)	The 1001 Arabidopsis genomes project
	4-F	***Lab 11***	***STUDENT PRESENTATIONS***

Requirements:		
	Midterm exam	20%
	Essay	20%
	Oral presentation	5%
	Laboratory	20%
	Final exam	35%

Grading system: Percentages converted to letter grades

A+ 90-100	A 85-89	A- 80-84	B+ 77-79	B 73-76	B- 70-72
C+ 65-69	C 60-64	D 50-59	F 0-49		

There will be no supplemental exams. No electronic devices will be permitted during any exam.

Please note – the midterm cannot be deferred. If you miss the midterm but provide a doctor's note, your final mark will be calculated on the basis of the other completed components of the course, and you will not incur any penalty. We assign an incomplete (not a zero) for any missed elements. Failure to complete too many important parts of the course (missed lab assignments, missed midterm) will result in being banned from the final. Students must abide by academic regulations as set out in the university calendar. They must observe standards of scholarly integrity with regards to plagiarism and cheating. Please refer to UVic Academic Calendar.