Extended Syllabus

(2016 1ST Semester)

Course Title	Plant Developmental Biology	Course Number	BIO4521
Credit	3	Enrollment Eligibility	
Class Time	Tue, Thu 10:30-11:45	Classroom	

Instructor's Photo	Name: Byeong-ha Lee	Homepage: pgrlab
	E-mail:	Telephone:
	Office: R1 Office Hours: Tue/Thu13-15; Wed10-12. Appointments by email preferred.	

Ⅰ. Course Overview

1. Description

This course is a **mid-advanced level** plant developmental biology. The course is designed to provide the students with the basic and current knowledge of plant development. We will discuss various aspects of plant development with many case studies. The course is lecture-based but the students are **strongly** encouraged to participate in classroom discussion. English will be used in the classroom and all assignments, if any, and exams should be written in English. Visit the "CyberCampus" frequently for announcements, discussions and the class notes.

2. Prerequisites

Basic concepts from courses of "Genetics" and "Molecular Biology"

3. Course Format (%)

Lecture	Discussion	Experiment/Practicum	Field study	Presentations	Other
100%	%	%	%	%	%

4. Evaluation (%)

Midterm	Final	Presentations	Projects	Assignments	Participation	Other
45%	45%	%	%	%	10%	%

Ⅱ. Course Objectives

Through this course, you will be able…

- to understand the difference between animal and plant developmental programs.
- to explain the basic anatomy and structures of plants.
- to learn the methodological approaches in plant development biology.
- to understand the functions of genes in plant development.
- to be aware of concepts of axes in plant body development.

Ⅲ. Course Format

(* In detail)

The course is lecture-based and there will be two 75 min lectures per week. At the beginning of classes, students will be asked to answer to quiz questions (posted on the CyberCampus prior to the class) and aims of today's class. At the end of classes, students should write the class summary with questions if any.
The course will cover from basic introductions in plant and molecular genetic plant biology to genetic mechanisms in plant development.

Ⅳ. Course Requirements and Grading Criteria

Two Exams (2 x 45%) + Class Participation (10%) = 100%: Each score will be converted to a standard score (mean=50, standard deviation=15~20) in order to normalize the score distribution among the two exams.

Cheating and plagiarism will not be tolerated. Anyone caught cheating/plagiarism will be given the "0" score for the test and will be reported to the university authorities.

If one does not take any of three exams without prior and reasonable excuses, one will be automatically given a grade of "F".

Ⅴ. Course Policies

Classroom Rules of Conduct:

Cell phones - Turn off or set to the silence mode.

Use your "common sense" for classroom behaviors.

It is possible to have **make-up classes during Exam weeks and Saturdays** (also some other days with students' consents) in case there are no classes due to the professors' attendance to the scientific conferences.

Ⅵ. Materials and References

Text Book:

"**Plant Physiology and Development**" (Taiz, Zeiger, Moller and Murphy, 6th ed, 2015)

"**Mechanism in Plant Development**" (Leyser and Day, Blackwell Science, 2003)

The main text book is "Plant Physiology and Development (**PPD**)", which is a very good book. "Mechanism in Plant Development (**MPD**)" is also a very good text book though it is a little old. We will deal with some topics from this book.

Ⅶ. Course Schedule

Please note that this course is under major upgrade. Therefore, the following schedule is tentative and highly subject to change. However, the main contents will not be changed greatly.

Week 1	**Learning Objectives**	Introduction to the Course and Plants
	Topics	- Introduction to the course - Definition of Plants & Plant life Cycle - Model Plants and Methods
	Class Work (Methods)	Lecture
	Materials (Required Readings)	MPD Chapter 1 & Handouts
	Assignments	-

Week 2	**Learning Objectives**	Methods and Plant Cells Wall
	Topics	- Plant Cell Wall Structures
	Class Work (Methods)	Lecture
	Materials (Required Readings)	PPD Chapter 14
	Assignments	-
Week 3	**Learning Objectives**	Cell Fate Determination: Lineage or Position
	Topics	Cell intrinsic information and cases
	Class Work (Methods)	Lecture
	Materials (Required Readings)	MPD Chapter 3
	Assignments	-
Week 4	**Learning Objectives**	Embryogenesis I
	Topics	Plant Embryogenesis
	Class Work (Methods)	Lecture
	Materials (Required Readings)	PPD Chapter 17
	Assignments	-
Week 5	**Learning Objectives**	Embryogenesis II: Apical Meristems
	Topics	- Root Apical Meristems - Shoot Apical Meristems
	Class Work (Methods)	Lecture

	Materials (Required Readings)	PPD Chapter 17
	Assignments	-
Week 6	**Learning Objectives**	Seed Germination
	Topics	- Seed Structure and Germination
	Class Work (Methods)	Lecture
	Materials (Required Readings)	PPD Chapter 18
	Assignments	-
Week 7	**Learning Objectives**	Seedling Growth
	Topics	- Seedling Growth - Tropisms - Tissue Differentiation
	Class Work (Methods)	Lecture
	Materials (Required Readings)	PPD Chapter 18
	Assignments	-
Week 8	**Learning Objectives**	Mid term
	Topics	
	Class Work (Methods)	
	Materials (Required Readings)	
	Assignments	

Week 9	**Learning Objectives**	Vegetative Growth
	Topics	- Leaf Development
	Class Work (Methods)	Lecture
	Materials (Required Readings)	PPD Chapter 19
	Assignments	-
Week 10	**Learning Objectives**	Organogenesis I
	Topics	- Shoot Branching - Root System
	Class Work (Methods)	Lecture
	Materials (Required Readings)	PPD Chapter 19
	Assignments	-
Week 11	**Learning Objectives**	Organogenesis II
	Topics	- Secondary Growth - Phyllotaxy
	Class Work (Methods)	Lecture
	Materials (Required Readings)	PPD Chapter 19 & Handout
	Assignments	-
Week 12	**Learning Objectives**	Flowering I
	Topics	- Phase Changes - Circadian Rhytms

	Class Work (Methods)	Lecture
	Materials (Required Readings)	PPD Chapter 20
	Assignments	-
Week 13	**Learning Objectives**	Flowering II
	Topics	- Vernalization - Florigen - Flower Organ Development
	Class Work (Methods)	Lecture
	Materials (Required Readings)	PPD Chapter 20
	Assignments	-
Week 14	**Learning Objectives**	Gametophytes to Fruits I
	Topics	- Gametophyte Development
	Class Work (Methods)	Lecture
	Materials (Required Readings)	PPD Chapter 21
	Assignments	-
Week 15	**Learning Objectives**	Gametophytes to Fruits II
	Topics	- Seed Development - Fruit Development
	Class Work (Methods)	Lecture
	Materials (Required Readings)	PPD Chapter 21

	Assignments	-
Week 16	**Learning Objectives**	Final Exam
	Topics **Class Work (Methods)**	
	Materials (Required Readings) **Assignments**	

Ⅷ. Special Accommodations

If you have a disability which requires accommodation in order for you to realize your potential in this course, please see me (R1107) or email me at byeongha@sogang.ac.kr

You can also contact SCSD (Sogang Center for Students with Disabilities, 02-705-7800, C building B104) and/or OIA (Office of International Affairs, 02-705-8118, J building J402).