

## LIFS2280 Plant Biology Laboratory

### Course Outline - Spring 2017

#### 1. Instructor

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#### 2. Teaching Assistants

*Name & Contact Details:*

|              |  |
|--------------|--|
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#### 3. Meeting Time and Venue

Lab session:

**Date/Time:** Fridays 13:00-15:50

**Venue:** Teaching Lab Rm 4160

Tutorials:

**Date/Time:** Fridays 12:00-12:50

**Venue:** Classroom Rm 1104

#### 4. Course Description

Credit Points: 3

Brief Information/synopsis:

This laboratory course is designed to allow students to have hands-on experience on techniques commonly used in plant biology researches. The theoretical principles underlying the techniques involved in this course will be covered in laboratory manual and explained in the pre-lab tutorials. The manual also includes step-by-step instructions for carrying out the experiments and writing lab reports. Obtained results and problems related to each of the experiment will be discussed in the post-lab tutorials.

## 5. Intended Learning Outcomes

On successful completion of this course, students are expected to be able to:

1. Practice key research techniques used in plant biology.
2. Qualitatively and quantitatively analyze data and apply plant biology knowledge to interpret the results.
3. Communicate scientifically in the form of reports and proposal.
4. Follow instructions and work effectively in a team to accomplish plant biology research tasks.

## 6. Assessment Scheme

- a. Assignment & Lab reports (50%)
- b. Lab performance (10%)
- c. Examination (40%)

| <u>Assessment</u>        | <u>Assessing Course ILOs</u> |
|--------------------------|------------------------------|
| Assignment & Lab reports | 1, 2                         |
| Lab performance          | 3                            |
| Examination              | 1, 2                         |

Keyword Syllabus:

- Plant structure: Cells and tissues of the plant body. Shoot and root architecture.
- Energy: Photosynthesis and respiration. Carbon cycle.
- Development: Primary and secondary development. Phytohormones and growth regulation. Gravitropism.
- Genetics: Reporter gene expression and regulation.

## Weekly Schedule

| Date                         | Time        | Topic   |
|------------------------------|-------------|---|
| 10 <sup>th</sup> Feb (Fri)   | 12:00-12:50 | Introduction  |
| 17 <sup>th</sup> Feb (Fri)   | 12:00-12:50 | Pre-lab tutorial 1  |
| 17 <sup>th</sup> Feb (Fri)   | 13:00-15:50 | Lab 1. Plant Structure  |
| 24 <sup>th</sup> Feb (Fri)   | 12:00-12:50 | Post-lab tutorial 1   |
| 3 <sup>rd</sup> Mar (Fri)    | 12:00-12:50 | Pre-lab tutorial 2  |
| 3 <sup>rd</sup> Mar (Fri)    | 13:00-15:50 | Lab 2. Photosynthesis and Respiration<br><br>Lab 1 report submission                  |
| 10 <sup>th</sup> Mar (Fri)   | 12:00-12:50 | Post-lab tutorial 2   |
| 17 <sup>th</sup> Mar (Fri)   | 12:00-12:50 | Pre-lab tutorial 3  |
| 17 <sup>th</sup> Mar (Fri)   | 13:00-15:50 | Lab 3. Plant growth and Development<br><br>Lab 2 report submission                    |
| 24 <sup>th</sup> Mar (Fri)   | 13:00-15:50 | Lab 3. Plant growth and Development follow-up<br><br>Lab 4. Effect of Touch on Plants |
| **24 <sup>th</sup> Mar (Fri) | 12:00-12:50 | Pre-lab tutorial 4  |
| 7 <sup>th</sup> Apr (Fri)    | 13:00-15:50 | Lab 4. Effect of touch on plants follow-up<br><br>Lab 3 report submission             |
| 21 <sup>st</sup> Apr (Fri)   | 9:00-17:00  | Lab 4 report submission (Dropbox)   |
| 28 <sup>th</sup> Apr (Fri)   | 12:00-12:50 | Review  |
| To be announced              | Final Exam  |   |