**Instructor:** Ajchara Aksomboon Vongsawan

**Course Goal:**

Biology 3 (SCI 32241) is the third biology course in the biology curriculum which serves as continuation for Mathayom 5 (Secondary Grade 11) Science-Math majors in preparation for entering biomedical sciences as well as other science fields. English is the language of instruction in the English Program. The study approach encourages students to discuss the topics understudied and applies the Thai curriculum using combination of US and Singaporean textbooks. This third biology course focuses on plant systems including structure, response and function, and introducing its’ importance in the global system.

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| **Grade 11 (M5): Year 2 Biology 3****Semester 1: (SCI 32241) 1.5 Credits, 60 hours** |
| **Course Content** | **Details** |
| **Unit 1:** **Structure and Function of Flowering** **Plants** | • Structure and Function of Plant tissue• Structure and Function of Root, Stem and Leaf• Transpiration in Plant• Transport System of water and  Mineral Salt in Plants• Transport of Organic Substance in Plants |
| **Unit 2: Plant Growth and Development** | • Plant Hormones• External Stimulus Inducing Plant Development |
| **Midterm Exam**  | **Material Covered from Units 1 and 2** |
| **Unit 3:** **Adaptations Flowering Plant use for** **Survival** | • Life Cycle of Flowering Plant• Reproduction in Flowering Plant• Plant Sexual Organs• Seed Germination |
|  **Unit 4:** **Photosynthesis** | • Importance of Photosynthesis• Mechanism of Photosynthesis • Photorespiration• C3 and C4 Plants• CAM Plants• Factors affecting Photosynthesis |
| **Grading and Evaluation** |  |
| **Percent Allocation** | **Percent** |
| Attendance and Participation | 10 |
| Assignments and Quiz | 20 |
| Experiments and Lab Report | 30 |
| Midterm | 20 |
| Finals | 20 |
| **Grade** | **Percent** |
| A | 80-100 |
| B+ | 70-74 |
| B | 75-79 |
| C+ | 65-69 |
| C | 60-64 |
| D+ | 55-59 |
| D | 50-54 |
| F | Below 50 |

**Expectations from students:**

(1) to always attend class

(2) to critically read the assigned material before class

(3) to enthusiastically participate in class discussions and problem-solving sessions

(4) to diligently prepare for all exams

**Study and Reading Materials**

**(1) Campbell PowerPoint Lectures and uploads given in conjunction with textbooks**

**(2) Textbooks**

2.1. Biology: A Global Approach, Global Edition, 10/E

Neil A. Campbell, University of California, Riverside

Jane B. Reece, Palo Alto, California

Lisa Urry

Michael L Cain, Bowdoin College, Brunswick, Maine

Steven A Wasserman, University of California, San Diego

Peter V Minorsky, Mercy College, Dobbs Ferry, New York

Robert B Jackson, Duke University, Durham, North Carolina

**or equivalent version**.

2.2. New Century Elective Biology: Secondary 4,5, and 6.

 Hodder Education Singapore, 2019 Edition.

 Beverly Tay, Loo Kwok Wai, Ong Bee Hoo, and Janlin Chan