**Instructor:** Ajchara AksomboonVongsawan

**Course Objective:** Biological Science is an academic requirement for both Math-Science and Math-English majors studying at Mathayom 4 (Secondary Grade 10) for semesters of Academic School Year 2022. Students are geared to acquire the basic understanding of concepts and details of covered topics through lectures, exercises, hands-on experiment(s), and interactive discussions during the class session. Student preparation and review of reading material prior and post class session is advised in order to keep up with the pace of instruction.

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| **Semester 1: (SCI 30101) 1.0 Credits, 60 hours****Grade 10 (M.4) Biological Science 1** |
| **Topics Covered** | **Details** |
| 1 | Environmental Homeostasis  | * Biome Diversity
* Physical Laws and Energy Flow
* Biogeochemical Cycles
* Trophic Levels
* Biotic and Abiotic Factors
 |
| 2 | Conservation Biology and Restoration Ecology | * Types of Environments and Natural Resources
* Effect on Environment and Natural resources
* Environmental Conservation
 |
|  | **Midterm Exam** | **Cover up to topics 1-2** |
| 3 | Cellular Transport | * Structure and Function of Cell Membrane
* Active and Passive Transport

(Endocytosis, Exocytosis, Diffusion, and Osmosis)  |
| 4 | Cellular Homeostasis | * Kidney and Function
* Kidney Malfunction and Disease
* Endocrine System function in homeostasis
* Immune Mechanism and Immunity
* Types of Immune Response
* Components of Immune Response
* Impaired Immune Response
* Immunocompromised arising from HIV Infection
 |
|  | **Final Exam** | **Cover up to topics 3-4** |
|  | **Score Assessment** | **Points** | **Total Points** |
| 1 | Class Attendance  | 10 | 60 |
| 2 | Class Manners and Participation* Attention/responsiveness
* Inappropriate conduct such as playing on mobile phones, tablets, etc… will result in point(s) deduction.

**Note:** Mobile phones will be permitted for searches in accordance to specific assignment/class activities once announced at specific timepoint(s). |
| 3 | Presentation in groups (individual scores for each student) Group Session – problem solving  | 20 |
| 4 | Extra-curriculum Activities* Lab with printed scientific report
 | 20 |
| 5 | Pop Quiz | 10 |
|  |
| 6 | Midterm | 20 | 40 |
| 7 | Final | 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 |

**NOTE:** **Timely class attendance. Tardy or absent students should follow up on missed work promptly.**

**Reading and Study Material:**

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

 **(2) Textbooks**

2.1. 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

2.2. 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**.

 2.3. Extra reading from sheets to be given.