

Course Outline**SCBI 109 Integrated Biology, First Semester 2016****Hours : Tuesday 09.00 – 12.00****Students : PO ~12 Students****Room M-307 (Phayathai)**

Week	Lecture Topics	Date	Instructor
1-2	1. The Nature of Living Things 1.1 What Makes Something Alive ? 1.2 The Organization of Life 1.3 The Cell Theory 1.4 People Behind the Science : Mathias Jakob Schleiden and Theodor Schwann 1.5 Major Cell Types <ul style="list-style-type: none"> - The Prokaryotic - Eukaryotic Cells 1.6 Transport Across Membranes <ul style="list-style-type: none"> - Passive Transport - Active Transport - Exocytosis and Endocytosis 	16, 23 Aug	Theeraporn
3	2. The Only Diet You Will Ever Need 2.1 Nutrients <ul style="list-style-type: none"> - Macronutrients - Micronutrients 2.2 Structure and Function of Macromolecules 2.3 Enzymes and Metabolism <ul style="list-style-type: none"> - Enzymes - Calories and Metabolic Rate 2.4 Body Fat and Health <ul style="list-style-type: none"> - Evaluating How Much Body Fat is Healthful - Obesity - Anorexia and Bulimia 	30 Aug	Theeraporn
4-5	3. Is the Earth Warming ? 3.1 The Greenhouse Effect 3.2 Cellular Respiration <ul style="list-style-type: none"> - Structure and Function of ATP - General Overview of Cellular Respiration - Glycolysis Krebs Cycle, and Electron Transport - Global Warming - Global Warming and Cellular Respiration 3.3 Photosynthesis <ul style="list-style-type: none"> - A General Overview of Photosynthesis 	6, 13 Sep	Pahol

	<ul style="list-style-type: none"> - <i>The Light Reactions and the Calvin Cycle</i> - <i>Global Warming and Photosynthesis</i> 3.4 Decreasing the Effects of Global Warming		
6	4. Gene and Heredity <ul style="list-style-type: none"> 4.1 <i>Cell cycle and life cycles of living organisms</i> 4.2 <i>Gamete production and genetic variations</i> 4.3 <i>Chromosome and inheritance</i> 4.4 <i>Relationship of gene, chromosome and Mendel's Laws</i> 	20 Sep	Theeraporn
7	5. Molecular Basis of the Gene <ul style="list-style-type: none"> 5.1 <i>DNA codes and passage of traits</i> 5.2 <i>Gene structure and function</i> 5.3 <i>Gene regulation and control of gene expression</i> 	27 Sep	Theeraporn
8	6. Genetic Engineering and Biotechnology <ul style="list-style-type: none"> 6.1 <i>Genetic engineering technique and human cloning</i> 6.2 <i>GMO products and Biotechnology</i> 6.3 <i>DNA technology and applications in agriculture and medicine</i> 	4 Oct	Theeraporn
9	Midterm Examination (contents of wks 1 - 8)	10-14 Oct	staff
10	7. Nature of Ecosystems <ul style="list-style-type: none"> 7.1 <i>The Biotic Components of Ecosystems</i> 7.2 <i>Energy Flow</i> 7.3 <i>Global Biogeochemical Cycles</i> 	18 Oct	Nuttaphon
11	8. Environmental Concerns <ul style="list-style-type: none"> 8.1 <i>Human Use of Resources and Pollution</i> 8.2 <i>Impact On Biodiversity</i> 8.3 <i>Working Toward a Sustainable Society</i> 	25 Oct	Nuttaphon
12-13	9. Evolution <ul style="list-style-type: none"> 9.1 <i>Where Did We Come From ?</i> 9.2 <i>An Evolving Enemy</i> 9.3 <i>Who am I ?</i> 	1, 8 Nov	Amara
14-16	10. Prospecting for Biological Gold <ul style="list-style-type: none"> 10.1 <i>Biological Classification</i> <ul style="list-style-type: none"> - <i>The Problem with Common Names</i> - <i>Taxonomy</i> - <i>Binomial System of Nomenclature</i> - <i>Organizing Species into Logical Groups</i> 10.2 <i>The Diversity of Life</i> 10.3 <i>Value of Biodiversity</i> 	15, 22, 29 Nov,	Amara
17	Final Exam (contents of wks 10 - 16)	6-16 Dec	staff

Evaluation criteria

Midterm examination	40 %
Final examination	35%
Attendance, Report, Presentation	25 %
Total	100 %

References

1. *Belk C, and Borden V, editors. Biology : science for life. 2nd ed. New Jersey (NY) : Pearson Education; 2007.*
2. *Campbell NA, Reece JB, Taylor MR, Simon EJ. Biology : concepts & connections. 5th ed. San Francisco (CA) : Benjamin Cummings; 2006.*
3. *other biology book and internet resources*

Instructors

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