Course Syllabus

1. Program of Study Bachelor of Science (Biological Sciences)
Faculty/Insitute/College Mahidol University International College

2. Course Code ICBI 212
Course Title General Biochemistry

3. Number of Credits 4 (3-2-7) (Lecture/Lab/Self-study)

4. Prerequisite *(s)* none

5. Type of Course Required for BI major and minor; Elective for EN

6. Trimester / Academic Year
Every trimester/ every academic year

7. Course Condition
Number of students is 20-30.

8. Course Description
Structure and function of biomolecules, controls and processes of metabolism at the cellular and molecular levels. Practical exercises are included.

9. Course Objective *(s)*

1. Understand the principles, concepts and facts of the structure and their related functions of the biomolecules.
2. Discuss the physical and chemical interaction of the biomolecules in cells and their metabolic pathways.
3. Emphasize, by selected clinical examples, the relationship of basic biochemical knowledge to practice of the related medical science.
4. Gain and improve the laboratory skill for biochemical analysis.

10.Course Outline

Week	Topics/ Seminar	Hours			Instructor
		Lecture	Lab	Self-Study	
1	- Introduction (1) - Nucleic acid (2) Lab: Introduction	3	2	7	Dr.Sumalee Dr.Saovanee
2	Carbohydrate (2) Lipid (1) Lab: pH and Buffer	3	2	7	Dr.Sumalee Dr.Saovanee
3	Amino acid, protein, enzyme Lab: Spectrophotometry	3	2	7	Dr.Sumalee Dr.Saovanee
4	Carbohydrate metabolism Lab: Carbohydrate	3	2	7	Dr.Sumalee Dr.Saovanee
5	Lipid metabolism Lab: Lipid	3	2	7	Dr.Sumalee Dr.Saovanee
6	Amino acid metabolism Lab: Amino acid	3	2	7	Dr.Sumalee Dr.Saovanee

7	**Midterm Exam**	3	2	7	Dr.Sumalee Dr.Saovanee
8	Nucleic metabolism Lab: Nucleic acid	3	2	7	Dr.Sumalee Dr.Saovanee
9	Hormone Nutrition Lab: Fermentation	3	2	7	Dr.Sumalee Dr.Saovanee
10	DNA synthesis RNA synthesis Protein synthesis Lab: Enzyme	3	2	7	Dr.Sumalee Dr.Saovanee
11	Gene Regulation Gene Technology Lab: Review	3	2	7	Dr.Sumalee Dr.Saovanee
Final Exam					
	Total	33	22	77	

11. Teaching Method *(s)*

1. Lecture
2. Suggested readings
3. Discussion in class

12. Teaching Media

1. Powerpoint Presentations
2. Texts and teaching materials

13. Measurement and Evaluation of Student Achievement

Student achievement is measured and evaluated by

13.1 The ability to understand the principles, concepts and facts of the structure and their related functions of the biomolecules.

13.2 The ability to discuss the physical and chemical interaction of the biomolecules in cells and their metabolic pathways.

13.3 The ability to emphasize, by selected clinical examples, the relationship of basic biochemical knowledge to practice of the related medical science.

13.4 Achieve the laboratory skill for biochemical analysis.

Student's achievement will be graded according to the college and university standard using the symbols: A, B+, B, C+, C, D+, D and F. Students must attend at least 80% of the total class hours of this course.

Ratio of mark

1. Mid-term examination	25%
2. Final examination	25%
3. PBL activities	10%
4. Laboratory	40%
Total	100%

14. Course evaluation

14.1 Students' achievement as indicated in number 13 above.

14.2 Students' satisfaction towards teaching and learning of the course using questionnaires**.**

15. Reference *(s)*

1. Hames B.D., Hooper, N.M. and Houghton, J.D. Instant notes in biochemistry. USA. Springer-Verlag. 1997.
2. Mathews C.K., and Van Holde, K.E. Biochemistry. 2nd Edition. USA. The Benjamin/Cummings Publishing Company, Inc. 1995.
3. Nelson, D.L. and Cox, M.M. Lehninger: Principles of biochemistry. 4th Edition. USA. W.H. Freeman and Company. 2004.

16. Instructor *(s)*

Assoc. Prof. Sumalee Tungpradabkul, Ph.D. (For 2nd trimester)
Assoc. Prof. Saovanee Dharmsthiti, Ph.D. (For 1st and 3rd trimester)

17. Course Coordinator

Assoc. Prof. Sumalee Tungpradabkul, Ph.D. (For 2nd trimester)
Assoc. Prof. Saovanee Dharmsthiti, Ph.D. (For 1st and 3rd trimester)