

## COURSE SYLLABUS

1. **Program of Study** Bachelor of Science (Chemistry)  
**Faculty** International College, Mahidol University
2. **Course Code** ICCH 462  
**Course Title** Macromolecules
3. **Number of Credits** 4 (4-0-8) (**Lecture/Lab/Self-study**)
4. **Prerequisites** ICCH 221 & 222
5. **Type of Course** Elective major course
6. **Semester / Academic Year:**  
Second trimester 2006-2007
7. **Course Conditions:** Number of students between 20-30
8. **Course Description:**  
Structures and functions of biological active polymers polypeptides, protein structures and folding, DNA, RNA and carbohydrates.
9. **Course Objectives:**  
After successful completion of this course, students should be able to  
9.1 understand and appreciate the structures of biological active polymers;  
9.2 relate and integrate the understanding of chemistry – organic, inorganic, analytical and physical chemistry – to biological macromolecules;  
9.3 enhance the understanding of biological and biochemical sciences.

### 10. Course Outlines

Week	Topics				Instructor
	Lecture/Seminar	Hour	Lab	Self-Study	
1	Amino acids	2	-	4	TBA.
2	Amino acid chemistry	4	-	8	TBA.
3	Polypeptide structures	4	-	8	TBA.
4	Protein folding and structures	4	-	8	TBA.
5	DNA, RNA chemistries	4	-	8	TBA.
6	DNA structures	4	-	8	TBA.
7	RNA structures	4	-	8	TBA.
8	Monosaccharide	4	-	8	TBA.
9	Monosaccharide and disaccharide	4	-	8	TBA.

	chemistries				
10	Carbohydrates	4	-	8	TBA.
11	Carbohydrates	4	-	8	TBA.
12	Miscellaneous macromolecules	2	-	4	TBA.
	Total	44	-	-	

### 11. Teaching Methods:

- 11.1 Lecturing
- 11.2 Self-study
- 11.3 Group discussion and presentation

### 12. Teaching Media:

Transparencies, handouts and lecturing from boards.

### 13. Measurement and Evaluation of Student Achievement

Student achievement is measured and evaluated by

- 13.1 the ability in understanding and appreciating the structures of biological active polymers;
- 13.2 the ability to relate and integrate the understanding of chemistry – organic, inorganic, analytical and physical chemistry – to biological macromolecules;
- 13.3 the ability to enhance the understanding of biological and biochemical sciences.

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.

Assessment made from the set-forward criteria: student who gets 85% and above will have Grade A.

A suggestive minimum of;

Midterm examination	40%
Final examination	50%
Quizzes	10%

### 13. 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.

### 14. References:

- Cantor, C. and Schimmel, P.R. **Biophysical Chemistry: Part I**, USA: W.H. Freeman; 1980.
- Cantor, C. and Schimmel, P.R. **Biophysical Chemistry: Part III**, USA: W.H. Freeman; 1980.

**16. Instructors:**

TBA.

**17. Course Coordinator:**

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