Course Syllabus

1. Name of the Curriculum Bachelor of Science (Biological Sciences)
International College, Mahidol University

2. Course Code ICBI 415
Course Title Biotechnology

3. Number of Credits 4 (4-0-8) (Lecture/Lab/Self-study)

4. Prerequisite *(s)* ICBI 213, ICBI 308

5. Type of Course Elective

6. Session or Quater/Academic Year
First Trimester of every academic year.

7. Course Condition none

8. Course Description
Technology and the applications of scientific principles in relation to animals, plants, microorganisms; production of cellular compounds in public health, agriculture and industry.

9. Course Objective *(s)*
At the completion of the course, student should be able to:
1. Define and describe the fundamental concepts of biotechnology.
2. Explain the tools and the technology used in biotechnology.
3. Understand the concepts for the practical applications of biotechnology.
4. Understand the basis for further study in the field of biotechnology.

10. Course Outline

10. Course Outline Week	**Topic**	**Hour**			**Instructor**
		Lecture	**Lab**	**Self study**	
1	Introduction to Biotechnology	4	0	8	Dr. Saovanee Dharmsthiti
2	Genetic Engineering as a tool in Biotechnology	4	0	8	Dr. Saovanee Dharmsthiti
3	Microbial growth and metabolites.	4	0	8	Dr. Saovanee Dharmsthiti
4	Fermentation process and Bioreactor Design	4	0	8	Dr. Saovanee Dharmsthiti
5	Downstream Processing in	4	0	8	Dr. Saovanee Dharmsthiti

	Biotechnology				
6	**Midterm Examination**	4	0	8	Dr. Saovanee Dharmsthiti
7	Enzyme in Biotechnology process	4	0	8	Dr. Saovanee Dharmsthiti
8	Microbial Biotechnology	4	0	8	Dr. Saovanee Dharmsthiti
9	Plant and Animal Biotechnology	4	0	8	Dr. Saovanee Dharmsthiti
10	Food and drugs	4	0	8	Dr. Saovanee Dharmsthiti
11	Bioremediation Regulations and Ethics	4	0	8	Dr. Saovanee Dharmsthiti
Final examination					
	Total	**44**	0	88	

11. Teaching Method *(s)*

Method of teaching consists of lecturing and assignment.

12. Teaching Media

Powerpoints, transparencies, book, handouts and web sites.

13. Measurement and evaluation of student achievement

Grade system (A, B+, B, C+, C, D+, D, F) is used and general standard criteria will be considered.

A	> 80% - 100%	B+	> 75% - 79%
B	> 70% - 74%	C+	> 65% - 69%
C	> 60% - 64%	D+	> 55% - 59%
D	> 50% - 54%	F	< 50%

Achievement is evaluated as follows:

1. Mid-term examination	40%
2. Final examination	40%
3. Assignments	20%
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)*

Ratledge, C. and Kristiansen, B. (editors). Basic biotechnology. 2nd Edition. UK. Cambridge University Press. 2001.

16. Instructor *(s)*

Assoc. Prof. Saovanee Dharmsthiti

17. Course Coordinator

Assoc. Prof. Saovanee Dharmsthiti