Course Syllabus

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

2. **Course Code**   ICBI 213
   Course Title   Genetics

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

4. **Prerequisite** *(s)*   none

5. **Type of Course**   Required

6. **Trimester/ Academic Year**
   Third trimester/ every year

7. **Course Condition**
   None

8. **Course Description**
   DNA as genetic material, Mendelian genetics, chromosomal basis of heredity, complex traits, evolutionary genetics, molecular genetics, formulation of genetic hypotheses.

9. **Course Objective** *(s)*
   1. To understand basic genetic concepts
   2. To develop learning processes and problem solving skills in genetics
   3. To be familiar with important concept and application of genetic instrumentation.
   4. To be able to formulate genetic hypotheses and work out phenotypic consequences.
   5. To be able to appreciate human genome project applications to biomedical science.
   6. Getting to know and appreciate some autobiography of prominent geneticists.
   7. Develop capacity and motivation to read more advance text books on genetics and also some details in scientific articles in current scientific journals.
   8. Develop critical thinking by doing some problem solving in class.
   9. Being exposed to current job market in biological sciences especially in genetics.

10. **Course Outline**

week	Topics/Seminar	Hours			Instructor
		Lecture	Lab	Self-study	
1	Overview and welcomes to genetics	4	0	8	Sujinda or Saovanee
2	Medelian genetics and genetic hypotheses	4	0	8	
3	Chromosome as gene bearers	4	0	8	
4	Gene linkage and mapping	4	0	8	

5	Chromosome variations and phenotypic consequences and cloning	4	0	8	
6	Reviews Midterm examination	4	0	8	
7	Discovery of molecular genetics	4	0	8	
8	Genetic engineering and genome project	4	0	8	
9	Genes within populations and changes	4	0	8	
10	Gene and environment as complex relationships	4	0	8	
11	Reviews	4	0	8	
Final examination					
	Total	44	-	88	

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 basic genetic concepts
13.2 The ability to develop learning processes and problem solving skills in genetics
13.3 The ability to understand important concept and application of genetic instrumentation.
13.4 The ability to formulate genetic hypotheses and work out phenotypic consequences.
13.5 The ability to appreciate human genome project applications to biomedical science.
13.6 The ability to develop critical thinking by doing some problem solving in class.

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
Midterm examination   40%
Final examination   40%
Class attendance   20%
and participation and problem sets
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)*

Hartl, D.L. and E.W. Jones. Essential genetics. 3rd Edition. USA. Jones and Bartlett Publishers. 2002..

16. Instructor *(s)*

Assist. Prof. Dr. Sujinda Thanaphum
Assoc. Prof. Saovanee Dharmsthiti

17. Course Coordinator

Assist. Prof. Dr. Sujinda Thanaphum
Assoc. Prof. Saovanee Dharmsthiti