

Course Syllabus
SCBM 374 Gene Technology
2nd Semester, Academic Year 2023

Course Title: Gene Technology
Course Code: SCBM 374
Total Credit: 1 (0-2-1)
Prerequisite: None
Duration: Second Semester

Course Description:

Gene manipulation and recombinant DNA techniques; principles of gene technology; mini-project involving handling of nucleic acid and proteins; evaluation of the quality of experimental data, laboratory rules and regulations.

Course Objectives:

At the end of this course, students will be able to

1. Explain basic principles of gene technology
2. Understand basic principles of nucleic-acid experiments
3. Understand basic principles of protein experiments
4. Interpret and evaluate the quality of experimental data

Teaching Methods:

Practical laboratory and computational sessions

Teaching Media:

PowerPoint; Classroom handouts; Google Classroom

Evaluation of Student Achievement:

• Quiz	20%
• Attendance	10%
• Lab report (1 report per group per class)	30%
• Experimental design project	20%
• Written exam	20%
• Total	100%

Grading scheme (0-50 F; 51-55 D; 56-60 D+; 61-65 C; 66-70 C+; 71-75 B; 76-80 B+; 81-100 A)

Recommended Textbook

- Molecular Cloning, A Laboratory Manual, 4th Edition, www.molecularcloning.org
- Cold Spring Harbor Protocols, www.cshprotocols.org
- Addgene's Plasmids 101 (3rd Ed.), www.addgene.org/educational-resources/ebooks/

Course Coordinator

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**SCBM 374 Schedule for the 2nd Semester, Year 2023,
Student group SCBM Faculty of Science,
Mahidol University (Phayathai Campus)**

Session	Date	Time	Contents	Class format	Room
1	13 MAR (W)	13-16h	Course introduction/ Bioinformatics I DNA sequence analysis and primer design	Powerpoint presentation video clips, onsite activity	Computer room (MUSAIS)
2	15 MAR (F)	13-16h	Buffer preparation	Powerpoint presentation video clips, onsite activity	MDL2
3	20 MAR (W)	13-16h	Plasmid isolation, PCR	Powerpoint presentation video clips, onsite activity	MDL2
4	22 MAR (F)	13-16h	Restriction cut/ Agarose electrophoresis	Powerpoint presentation, video clips, onsite activity Quiz	MDL2
5	27 MAR (W)	13-16h	Result discussion/quiz	Powerpoint presentation video clips, onsite activity	MDL2
6	29 Mar (F)	13-16h	Bioinformatics II protein sequence analysis	Powerpoint presentation, video clips, onsite activity	P401
7	3 Apr (W)	13-16h	Cell lysis, SDS-PAGE, Coomassie stain/project idea brainstorming	Powerpoint presentation	MDL2
8	5 Apr (F)	13-16h	Result discussion II/quiz	Powerpoint presentation, Computational activity Quiz	P401
9	10 Apr (W)	13-16h	Project pitching and prize	Powerpoint presentation	P401
10	12 Apr (W)	13-16h	Exam	Onsite	P401