

**Course Description:** An introduction to microbiological techniques and principles through hands-on laboratory activities and tutorials. Topics include cultivation, isolation, differentiation, identification, control and exploitation of microorganisms, and prevalence of microorganisms in the body, environment and food. **Co-requisite:** LIFS3060 **Credit Points:** 3

**Intended Learning Outcomes (ILOs):** On successful completion of this course, students are expected to be able to: (1) recall information concerning basic microbiology laboratory techniques; (2) demonstrate practical competence in basic microbiology laboratory techniques; (3) apply scientific reasoning and knowledge to describe, analyze, interpret and explain experimental data; (4) apply basic microbiological principles to daily life and special situations; (5) work and coordinate effectively in a group to develop collaborative projects; (6) operate ethical laboratory practices such as safety and environmental protection; and (7) evaluate and design laboratory experiments, interpret experimental data and write up the results in accordance with appropriate scientific conventions.

**Weekly Meeting Time & Venue:**

Mon 18:00-18:50	Room 1104 or 4160
Wed 14:00-16:50	Room 4160
Thu 17:00-17:50	Room 4160

#### Course Schedule:

<i>Week</i>	<i>Dates</i>	<i>Topics</i>
1	Jan 30, 31	Course Introduction Practical 1 – Culture & Visualization of Microbes
2	Feb 11, 13, 14	Practical 1 – Culture & Visualization of Microbes (cont.)
3	Feb 18, 20, 21	Practical 2 – Isolation & Characterization of Microbes
4	Feb 25, 27, 28	Practical 2 – Isolation & Characterization of Microbes (cont.)
5	Mar 4, 6, 7	Practical 3 – Antimicrobials & Sterilization
6	Mar 11, 13, 14	Practical 4 – Symbiotic & Food Microbes
7	Mar 18, 20, 21	Practical 5 – Microbiological Analysis of Food & Water
8	Mar 25, 27, 28	Practical 5 – Microbiological Analysis of Food & Water (cont.)
9	Apr 1, 3, 4	Project – Identification of Microbes in the Air
10	Apr 8, 10, 11	Project – Identification of Microbes in the Air (cont.)
11	Apr 15, 17, 24, 25	Project – Identification of Microbes in the Air (cont.)
12	Apr 29, May 2	Practical 6 – Viruses
13	May 6, 8, 9	Practical 6 – Viruses (cont.)

#### Student Learning Activities:

Performing laboratory experiments & project, observing laboratory demonstrations, attending tutorials, reading course instructive materials, watching course videos, writing laboratory reports & exploring relevant materials from other resources

#### Student Learning Resources:

Course instructive materials & videos provided by the instructor; references: (1) Textbook for LIFS3060, (2) Forbes B.A. *et al.* “Bailey & Scott's Diagnostic Microbiology” Elsevier-Mosby. 2007, (3) Holt J.G. *et al.* “Bergey's Manual of Determinative Bacteriology” Williams & Wilkins. 1994; library and internet-based resources

#### Assessment Scheme:

- **Laboratory Reports (40%)**, assessing ILOs 3, 4, 5 & 7
- **Experimental Skills (20%)**, assessing ILOs 2, 3, 5, 6 & 7
- **Final Exam (40%)**, assessing ILOs 1, 3 & 4

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