**SEMESTER I & II**  
**LSM2291 FUNDAMENTAL TECHNIQUES IN MICROBIOLOGY**

**Prerequisite:** LSM1101 or LSM1102 or LSM1103  
**Workload:** 13 lecture hours + 32 laboratory hours

This module gives an overview of microbial diversity, the biological properties of microbes, methods and approaches in the study of microbiology. At the end of the module, students should have fundamental knowledge of microbiology, including tools in the study of cells and microbes and the awareness of biosafety, and students should be excited by the microbial world and wishing to know more.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Topics</th>
<th>Lecture hours</th>
<th>Practicals</th>
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<tbody>
<tr>
<td>1.</td>
<td>Introduction to the diversity of microbial world and phylogeny</td>
<td>2h</td>
<td>(Sem 2: A/P Sim TS)</td>
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<td>2.</td>
<td>Biosafety</td>
<td>1h</td>
<td>(Sem 2: A/P Justin Chu)</td>
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<td>3.</td>
<td>Isolation and identification of microbes</td>
<td>4h</td>
<td>(Sem 2: A/P Tan YJ)</td>
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<td>4.</td>
<td>Microbes in the environment: Where are microbes found and why are they there</td>
<td>4h</td>
<td>(Sem 2: A/P Sim TS)</td>
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<td>5.</td>
<td>Microbes and immunity</td>
<td>2h</td>
<td>(Sem 2: A/P Justin Chu)</td>
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<td>6.</td>
<td>Soil microbiology: Isolation, identification and characterization (antibiotic producers, polysaccharide producers)</td>
<td>8h</td>
<td>(Sem 2: A/P Sim TS)</td>
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<td>7.</td>
<td>Water-borne pathogens: Isolation, enumeration, physiology and behaviour outside the host</td>
<td>8h</td>
<td>(Sem 2: A/P Justin Chu)</td>
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<td>8.</td>
<td>Food microbiology: Isolation, enumeration and characterization (yeast, lactic acid bacteria, enteric bacteria)</td>
<td>8h</td>
<td>(Sem 2: A/P Justin Chu)</td>
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<td>9.</td>
<td>Human skin microbiology: Isolation, are they pathogens?</td>
<td>8h</td>
<td>(Sem 2: A/P Justin Chu)</td>
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Lectures: 13h  
Practicals: 32h  
Total hours: 45h

**MODE OF ASSESSMENT:** Continuous Assessment (70%); Laboratories (30%)

**MODULE COORDINATORS:**  
(Semester I)  
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**LECTURERS**  
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A/P Tan Yee Joo

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