



## Module Description/Course Syllabi

Study Program : Bachelor Program (S1)  
Faculty of Agriculture  
University of Andalas

### **1. Course number and name**

PPT611 01 AGRICULTURAL MICROBIOLOGY

### **2. Credits and contact hours/Number of ECTS credits allocated**

3 credits (2 classes, 1 practicum)

### **3. Instructors and course coordinator**

Dr. Zurai Resti P. MP  
Dr. Ir. Darnetty M.Sc  
Dr. Ir. Ujang Khairul MP.  
Ir. Reflin MP.

### **4. Text book, title, outhor, and year**

1. Alberts, B, Bray D, Johnson A, Lewis J, Raff M, Roberts K, Walter. 1998. Essential Cell Biology. An Introduction to the Molecular Biology of the Cell. Garland Publishing, Inc. New York.
2. Alexander M. 1997. Introduction to Soil Microbiology. John Wiley & Sons, Inc. New York .8
3. Bardgett RD, Usher MB, Hopkins DW 2005: Biological Diversity and Function in Soils. Cambridge University Press, Cambridge
4. Buscot F, Varma A 2005: Microorganisms in Soils: Roles in Genesis and Function. Springer, Berlin
5. Cahyani VR and Kimura M: Succession and phylogenetic composition of microbial communities responsible for the composting process of rice straw. In Joseph C. Pereira, and John L. Bolin (eds.), Composting: Processes, Materials and Approaches. pp.69-112. Nova Science Publishers, Inc. New York, USA (2009) ISBN: 978-1-60741-438-4
6. Cahyani VR, Murase J, Asakawa S, Kimura M 2009: Change in T4-type bacteriophage communities during the composting process of rice straw: Estimation from the major capsid gene (g23) sequences. Soil Science and Plant Nutrition, 55, 468-477
7. Cahyani VR, Murase J, Ishibashi E, Asakawa S, Kimura M 2009: T4-type bacteriophage communities estimated from the major capsid genes (g23) in manganese nodules in Japanese paddy fields. Soil Science and Plant Nutrition, 55, 264-270
8. Cahyani VR, Murase J, Ishibasi E, Asakawa S, Kimura M 2009: Phylogenetic positions of Mn<sup>2+</sup>-oxidizing bacteria and fungi isolated from Mn nodules in rice field subsoils. Biology and Fertility of Soils, 45, 337-346
9. Cahyani VR, Murase J, Ikeda A, Taki K, Kimura M: 2008: Bacterial communities in iron mottles in the plow pan layer in a Japanese rice field: Estimation using PCR-DGGE and sequencing analyses. Soil Science and Plant Nutrition, 54, 711-717

10. Cahyani VR, Murase J, Ishibasi E, Asakawa S, Kimura M 2017: Bacterial communities in manganese nodules in rice field subsoils: estimation using PCR-DGGE and sequencing analyses. <i>Soil Science and Plant Nutrition</i> , 53, 575-584
<b>5. Specific course information</b>
<b>. Brief description of the content of the course (catalog description)</b>
Discusses the position of microorganisms, the role of microorganisms in agriculture (soil, food and plant diseases), introduction to types of microorganisms (viruses, bacteria, fungi, algae, protozoa and nematodes), nutrition, development and growth, metabolism of microorganisms (energy utilization, enzymes, fermentation, biosynthesis, element cycles), basic genetics of microorganisms, management, control and utilization of microorganisms.
<b>B. Level of course unit (according to EQF: first cycle Bachelor, second cycle Master)</b>
First Cycle Bachelor
<b>C. Semester when the course unit is delivered</b>
Even Semester
<b>D. Mode of delivery (face-to-face, distance learning)</b>
Face to face
<b>6. Intended Learning Outcomes (CPL)</b>
ILO-1: Able to apply basic agricultural sciences widely in overcoming agricultural problems for sustainable agricultural development (P) PI 2 : Analyze agricultural problems using a soil science approach and agricultural sciences in general.
<b>7. Course Learning Outcomes (CPMK) ex. The student will be able to explain the significance of current research about a particular topic.</b>
2 : Analyze agricultural problems using a soil science approach and agricultural sciences in general.
<b>8. Learning and teaching methods</b>
Cooperative learning
<b>9. Language of instruction</b>
Indonesian
<b>10. Assessment methods and criteria</b>
<b>Summative Assessment :</b>
1. Assignment 2. UTS 3. UAS

4. Internship

**Formative Assessment:**

1. Minutes paper