Subject Module
Department of Agrotechnology
Faculty of Agriculture
University of Islam Malang

Module Handbook

ModuleTitle	Research Methodology and Philosophy of Science
ModuleLevel,ifavailable	UndergraduateStudy Programof Agrotechnology
Course Code	MPB 4101
Headings,ifavailable	-
Course(MK)	Research Methodology and Philosophy of Science
Semester	7
Course Coordinator	Prof. Dr. Ir. Agus Sugianto, ST., MP
TeachingTeam	-
Languageofinstruction	Indonesianlanguage/English
Linkages withtheCurriculum	StudyProgram : Agrotechnology Specialization:Agrotechnology Type:~~Compulsory~~/elective
Learning Methods andDuration	1. Lecture:100minutes/meeting(9meetings) 2. Practicum170minutes/meeting(5meetings) 3. StructuredAssignments/individual and group Assigmentspresentation
StudentStudy Load	1. Lecture:100minutes/meeting(9 meetings) 2. Practicum: 170minutes/meeting(5meetings) 3. StructuredAssignments/quiz/grouppresentation 4. Attendance:75%oftotalattendance
CreditWeight	2 credits or5.1 ECTS
Requirements for Passing theCourse	• Attendance>75% • The final score of all the components of the learning evaluation >44 Thefinalscorecomponent: • 25%Midterm Exam • 25%FinalExam • 20%Practicum • 20%Structured Assignments (individual and group) • 10% Presence
PrerequisiteCourses	Statistics and Experimental Design
LearningOutcomes	Theexpectedlearningoutcomesare: 1. Able to work independently and in teams, and use various methods of communication (ILO 2) 2. Have good and in-depth knowledge in basic agricultural disciplines that support the field of Agrotechnology (ILO 4) 3. Memiliki kemampuan untuk mengidentifikasi dan merumuskan masalah yang timbul dalam bidang agroteknologi dan bidang ilmu yang berkaitan (ILO 5) 4. Able to find references, plan and apply various research methods in the agro-technology field (ILO 7) 5. Able to plan, solve problems, and manage crop production systems

	(ILO 9)
Learning Content	After completing this course students are ableto: 1. Able to master the concept of Philosophy of Science from various points of view and human efforts to seek the truth with various scientific and non-scientific approaches 2. Able to identify the basics of science, namely ontology, epistemology and axiology as well as scientific means to develop which consist of language, mathematics, statistics and logic 3. Able to find research problems, identify and formulate using the correct steps and the right concepts to be used for scipsi making 4. Able to find research problems, identify and formulate using the correct steps and the right concepts to be used for thesis making 5. Able to perform analysis, interpretation and evaluation of the data obtained from the research results in order to use the logic coherently 6. Able to compile research reports written in thesis format and make articles to be published and simulated in the form of seminars The topics include: 1. INTRODUCTION • Definition and Terms of Philosophy • Philosophy of Science and Its Purpose • Scope of the Philosophy of Science • Science and Human Efforts to Acquire the Truth 2. THE TRUTH OF SCIENCE • Approaches to Acquiring the Truth • Science as Scientific Truth • Science Sources • Scientific and Non-Scientific Methods 3. BASICS OF SCIENCE • Ontology • Epistemology • Axiology 4. SCIENTIFIC MEANS (I) • Language • Mathematics 5. SCIENTIFIC MEANS (II) • Statistics • Logic 6. BASIC CONCEPTS IN RESEARCH • Human Attempts to Acquire Scientific Truth • Science Sources • Agrotech Research Methodology • Research functions and roles for undergraduate students 7. RESEARCH PROBLEMS • Definition and Terms • How to Determine the Problem • How to Identify the Problem • Steps for Problem Formulation 8. FORMULATION OF RESEARCH TOPICS, TITLES, OBJECTIVES AND HYPOTHESES • Formulate the Title and the Key Word • Writing the formulation of the research problem • Purpose and Research Objectives • Formulation of Hypotheses 9. PREPARATION OF LIBRARY • Library sources

	• Principles of Library Selection • Bibliography citation method • Writing Bibliography on Text and Bibliography 10. EXPERIMENT DESIGN • Definition of Experiment Design • Functions, Features, and Principles of Experiment Design • Trial Error Control • Treatment Selection and Experimental Design 11. SAMPLING ENGINEERING AND RESEARCH DESIGN • Population and sample • Sampling Considerations • How to Apply the Sampling Technique • Sampling Technique Steps 12. ANALYSIS, INTERPRETATION AND DATA EVALUATION • Types of data • Data Presentation Techniques • Data analysis with ANOVA • Data analysis with regression-correlation 13. PREPARATION OF RESEARCH REPORTS • Making the initial part of the Scipsi • Making the Main (Core) Scripsi • Making the Final Scipsi • Writing Scientific Articles 14. PROPOSAL SEMINAR / RESEARCH RESULT AND THESIS EXAM • Definition and Terms of Seminar • Preparation for a Seminar on Proposals and Scipsi Research Results • Scipsi Examination success tips
Test Terms and Forms	Examination requirements: A minimum of 75 % attendance to attendthe final exam Forms of examination: Essay
LearningMedia	Projector and screen, Zoom application, Google Classroom, WAGroup
References	**Main References**: 1. Sugianto, A. dan A. Sholihah. 2016. Filsafat Ilmu dan Metodologi Penelitian Agroteknologi. Malang. Aditya Media Publishing. 2. Sugianto, A. 2017. Filsafat Ilmu Pengetahuan dan Teknologi. Malang. Aditya Media Publishing. **Supporting References:** 1. Ahmad, T. 2009. *Filsafat Umum Akal Dan Hati Sejak Thales Sampai Capra*.Bandung. PT. Remaja Rosdakarya. 2. Achmadi, A. 2012. *Filsafat Umum*. PT. Raja Grafindo Persada, Jakarta. 3. Bakar, O. 2008. *Tauhid dan Sains* . Bandung: Pustaka Hidayah. 4. Bakhtiar, A. 2004. *Filsafat Ilmu* . Jakarta: PT Raja Grafindo. 5. Berten, K. 2006. *Sejarah Filsafat Yunani*. Yogyakarta: Kanisius. 6. Gazalba, S. 1978. *Sistematika Filsafat, Pengantar Kepada Teori Nilai*. Jakarta: Bulan Bintang. 7. Hakim, M.A. dan B. A. Saebani. 2008. *Filsafat Umum Dari Metologi Sampai Teofilosofi*. Pustaka Setia, Bandung. 8. Idi, Abdullah dan Jalaluddin. *Filsafat Pendidikan :Manusia, Filsafat dan Pendidikan*. Jogjakarta: Ar-Ruzz Media.

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16. Sugianto, A. 2008. *Metodologi Penelitian Agronomi*. Surabaya. Alpha.
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