



UNIVERSITI TEKNOLOGI MARA

AGR580: AGRICULTURAL RESEARCH METHODOLOGY

Course Name (English)	AGRICULTURAL RESEARCH METHODOLOGY APPROVED
Course Code	AGR580
MQF Credit	3
Course Description	no description provided
Transferable Skills	Knowledge, Life long Learning
Teaching Methodologies	Lectures, Lab Work
CLO	CLO1 Verbally, visually and mathematically relate and discuss various concepts and theories in research methodology CLO2 Verify, assess and employ various concepts and theories in research methodology to conduct various tests of hypothesis manually and using statistical software CLO3 Observe, justify, plan, conduct and analyze experiments in the laboratory, the field and the rainshelter CLO4 Communicate to peers verbally and to the facilitator in writing, scientific investigations in the areas of horticulture, soil science and plant production
Pre-Requisite Courses	No course recommendations
Topics	
1. 1. Descriptive statistics 1.1) 1.1 Variability and uncertainty and the need for statistics 1.2) 1.2 Variables and factors 1.3) 1.3 Population and sample 1.4) 1.4 Sampling and experimental units 1.5) 1.5 Sampling techniques 1.6) 1.6 Graphical presentation 1.7) 1.7 Measure of central tendency	
2. 2. The normal distribution, estimation and hypothesis testing 2.1) 2.1 The normal distribution 2.2) 2.2 The standard normal distribution 2.3) 2.3 Estimation 2.4) 2.4 Hypothesis testing 2.5) 2.5 Single sample t test 2.6) 2.6 Paired t test 2.7) 2.7 Unpaired t test	
3. 3. Introduction to research 3.1) 3.1 What is research 3.2) 3.2 Types of research 3.3) 3.3 Types of agricultural research	
4. 4. Ensuring success in experiment 4.1) 4.1 Four phases of a successful experiment 4.2) 4.2 Sources of error in field experiments	
5. 5. Experimental designs 5.1) 5.1 The three principles 5.2) 5.2 Assumptions in ANOVA	

6. 6. Some common designs 6.1) 7.1 Advantages over simple experiment 6.2) 7.2 Interaction 6.3) 7.3 Factorial experiment using CRD, RCBD and LSD 6.4) 7.4 Split plot design
7. 7. Factorial experiment 7.1) n/a
8. Laboratory 8.1) n/a

Assessment Breakdown	%
Continuous Assessment	45.00%
Final Assessment	55.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Lab Exercise	Lab report	5%	CLO1 , CLO2 , CLO3 , CLO4
	Test	Test 1	15%	CLO1 , CLO2 , CLO3 , CLO4
	Test	Test 2	15%	CLO1 , CLO2 , CLO3 , CLO4
	Written Report	Reports	10%	CLO1 , CLO2 , CLO3 , CLO4

Reading List	Recommended Text	Clewr, A.G. & Scarisbrick, D.H. 2001, <i>Practical statistics and experimental design for plant & crop science</i> , John Wiley & Sons Ltd New York
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	