



Course Syllabus (Academic Year 2023)

School of Interdisciplinary Studies, Kanchanaburi Campus, Mahidol University

- 1. **Course No. and Title** : KAID370 Experimental Designs
Credit (study hours) : 3(3-0-6)
- 2. **Program Name** : Bachelor of Science (Agricultural Science)
- 3. **Course Module** : Major Required Courses
Pre/co-requisite : KAID270(KAID209) Introduction to Statistics
- 4. **Class Semester** : 1st Semester 2nd Semester Academic Year 2023
- 5. **Class Schedule & Venue** : M 09:00 – 12:00 Room 2307 Hybrid Webex GoogleClassroom KAID370_66 and MUKA e-learning.
- 6. **Class Coordinator** : Dr. Nuengruithai Tharawatcharasart
Contact No. : Email : Nuengruithai.tha@mahidol.edu

7. Course Description

Basic principle of experimental design; completely randomized design; treatment combination; orthogonal; randomized blocked design; Latin square design; factorial experiments; application of statistics; SPSS program.

8. Course Objectives / Course Learning Outcomes (CLOs)

No.	Objectives / CLOs	Expected Skills / Knowledge			PLOs
		Specific	Generic	Knowledge	
8.1	To provide students with knowledge and understanding of skills of experimental designs				
8.2	To provide students with problem solving skills by an approach that experimental designs				
8.3	To provide students can apply the knowledge of experimental designs				

9. Class Instructor List

9.1 Name : Dr. Nuengruithai Tharawatcharasart (NT) Email Nuengruithai.tha@mahidol.edu

GoogleClassroom KAI370_66

10. Course Outline

Week	Date	Contents	CLOs	Teaching & Learning	Instructor's Names
1	7 Aug	Basic principle of experimental design	1	Lecture	NT
2	21 Aug	Completely randomized design	1	Lecture	NT
3	28 Aug	Treatment combination	1	Lecture	NT
4	4 Sep	Application 1	1	Lecture	NT
5	11 Sep	Orthogonal	1	Lecture	NT
6	18 Sep	Randomized blocked design	1	Lecture	NT
7	25 Sep	SPSS program1	1	Lecture	NT
8	2 – 6 Oct Mid-term Examination				
9	9 Oct	Latin square design	1	Lecture	NT
10	16 Oct	factorial experiments1	1	Lecture	NT
11	30 Oct	factorial experiments2	1	Lecture	NT
12	6 Nov	factorial experiments3	1	Lecture	NT
13	13 Nov	SPSS program2	1	Lecture	NT
14	20 Nov	Application 2	1	Lecture	NT
15	27 Nov	Application 2	1	Lecture	NT
16	4 – 15 Dec Final Examination				

11. Course Assessment

No.	Methods / Activities	Regulations	CLOs	Week	Weight Distribution (%)
11.1	Mid-term exam	Writing examination (Open book)	8.1, 8.2	8	30
11.2	Final exam	Writing examination (Open book)	8.1, 8.2	16	30
11.3	Reports / Assignments	Complete and On time	8.2, 8.3	2-16	30
11.4	Class participation	Complete and On time	8.2, 8.3	2-16	10
				Total	100

12. Grading System

Criterion-referenced evaluation

Grade	Score	Grade	Score	Grade	Score	Grade	Score
A	$\geq 80\%$	B	70 – 74.99%	C	60 – 64.99%	D	50 – 54.99%
B+	75 – 79.99%	C+	65 – 69.99%	D+	55 – 59.99%	F	< 50 %

Norm-referenced evaluation

*If use both criterion and norm-referenced evaluation, please tick two boxes.

13. References

- 13.1 ปราโมทย์ พรสุริยา. 2557. การวางแผนการทดลองทางพีชศาสตร์. สาขาวิชาเทคโนโลยีการผลิตพืช คณะเกษตรศาสตร์และทรัพยากรธรรมชาติ มหาวิทยาลัยเทคโนโลยีราชมงคลตะวันออก วิทยาเขตบางพระ.
- 13.2 นิดา ซาญบรยง. หลักการวางแผนการทดลอง. https://kukr2.lib.ku.ac.th/download_digital_file.
- 13.3 อนันต์ชัย เชื้อธรรม. 2539. หลักการวางแผนการทดลอง. ภาควิชาสถิติ คณะวิทยาศาสตร์ มหาวิทยาลัยเกษตรศาสตร์. กรุงเทพฯ.
- 13.4 Box, G.E.P, W.G. Hunter and J.S. Hunter. 1978. Statistics for Experimenters: John Wiley & Sons, Inc., New York.
- 13.5 Hogg RV. Probability and statistical inference. 5th ed. Prentice-Hall; 1997.