



Course Syllabus (Academic Year 2020)

School of Interdisciplinary Studies, Kanchanaburi Campus, Mahidol University

- Course No. and Title** : KACB 319 Biostatistics
Credit (study hours) : 3 (3-0-6)
- Program Name** : Bachelor of Science in Conservation Biology
- Course Module** : Gen.Edu. course Core course Elective course
Pre/co-requisite : KAID270 Introduction to Statistics
- Semester** : 1st Semester 2nd Semester Academic Year 2020
- Class Schedule & Venue** : Monday 09:30 – 12:30 Online Webex / Google Classroom
- Course Coordinator** : Lect. Chetsada Phaenark Contact No. : 080-0762169
Email: jetsada2004@hotmail.com, chetsada.pha@mahidol.ac.th

7. Course Description

Biological data; sampling methods; the descriptive statistics; probability distribution; sampling distribution; estimation; hypothesis testing; the completely randomized design (CRD), the randomized complete block design (RCBD) and analysis of variance (ANOVA); chi-square test; regression; correlation; non-parametric statistics

8. Course Objectives / Course Learning Outcomes (CLOs)

No.	Objectives / CLOs	PLOs
8.1	Explain biological data, sampling method, and statistics for data analysis	4
8.2	Use the descriptive statistics for data presentation	4
8.3	Use the discrete and continuous probability distribution and sampling distribution for biological study	4
8.4	Demonstrate the parameter estimation from the sampling data	4
8.5	Demonstrate the hypothesis testing for biological data by appropriate statistical method	4
8.6	Demonstrate the experimental design in biological study for collecting and analyzing the data by analysis of variance (ANOVA)	4
8.7	Demonstrate the correlation testing and linear regression analysis of biological data	4
8.8	Demonstrate the data analysis by non- parametric statistics	4

* PLOs = Program Learning Outcomes

PLO4: Conduct the own scientific research to solve the particular problem related to biodiversity conservation

9. Class Instructor List

Instructor's Name	Contact No.	Email
9.1 Chetsada Phaenark (CP)	080-0762169	jetsada2004@hotmail.com, chetsada.pha@mahidol.edu
9.2 Weerachon Sawangproh (WS)		weerachon.saw@mahidol.edu

10. Course Outline

Week	Date	Contents	CLOs	Instructor	Assessment Distribution - % (detail in 11. Course Assessment)				
					11.1	11.2	11.3	11.4	11.5
1	10 Aug 20	• Course orientation	1	CP	5			1	0.5
		• Biostatistics and Biological Data		CP					
		• Sampling methods		CP					
2	17 Aug 20	• Descriptive Statistics	2	CP					1.0
		• Vital Statistics	2	CP					
		• Discrete Probability Distribution	3	CP					
3	24 Aug 20	• Continuous Probability Distribution	3	CP	0.5	3		1	0.5
		• Sampling distribution	3	CP					
		• Estimation	4	CP					
4	31 Aug 20	• Hypothesis testing (one population) • Hypothesis testing (two population)	5	CP	0.5	5		1	0.5
5	7 Sep 20	CRD - One way ANOVA	6	CP	0.5	5		1	0.5
6	14 Sep 20	RCBD, Factorial - Two way ANOVA	6	CP	0.5	5		1	0.5
7	21 Sep 20	Correlation and Linear Regression	7	CP	0.5	5		1	0.5
8	28 Sep 20	Probit Analysis	7	CP		5			0.5
Midterm Examination (สอบออนไลน์ ตามตารางที่งานการศึกษากำหนด)			3-7	30					
9	12 Oct 20	Chi-square Testing	8	CP	0.5		5	1	0.5
10	19 Oct 20	Non-Parametric Statistics for one population	8	WS	0.5		5	1	0.5
11	26 Oct 20	Non-Parametric Statistics for two population	8	WS	0.5		5	1	0.5
12	2 Nov 20	Non-Parametric Statistics for >2 population	8	WS	0.5		5	1	0.5
13	9 Nov 20	Non-Parametric Statistics for correlation	8	WS	0.5		5	1	0.5
14	16 Nov 20	Class Discussion	1-8	CP & WS	5				1.0
15	23 Nov 20	Mini project presentation	1-8	CP & WS	10				1.0
Final Examination (สอบออนไลน์ ตามตารางที่งานการศึกษากำหนด)			8	25					

11. Course Assessment

No.	Methods / Activities	Regulations	CLOs	Week	Weight Dist. (%)
11.1	1) Homework 2) Assignments 3) Mini project	Instructor will explain the detail of Homework/Assignments/Mini project/Activities in the class. The homework / assignments have been submitted on time (deadline time will be announced later)	1 – 8	1 – 15	25.00
11.2	Mid-term exam	3 hour exam (other regulation will be announced in the class later)	3 – 7	Midterm	30.00
11.3	Final exam	3 hour exam (other regulation will be announced in the class later)	8	Final	25.00
11.4	Quiz / Individual test	Pre-test in 10 min. before class or Post-test in 10 min. after class	1 – 8	1 – 13	11.00
11.5	Class participation	Students have to attend in the class, discussion, Q&A		1 – 15	9.00
Total (for criterion-referenced Grading defined in 12. Grading system)					100.00

12. Grading System

Criterion-referenced evaluation

Grade	Score	Grade	Score	Grade	Score	Grade	Score
A	≥ 80 %	B	70 – 74 %	C	60 – 64 %	D	50 – 54 %
B+	75 – 79 %	C+	65 – 69 %	D+	55 – 59 %	F	< 50 %

Norm-referenced evaluation

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

13. References

คณาจารย์ภาควิชาคณิตศาสตร์ คณะวิทยาศาสตร์ จุฬาฯ. (2554). *ความน่าจะเป็นและสถิติ*. พิมพ์ครั้งที่ 9. กรุงเทพฯ: โรงพิมพ์ห้างหุ้นส่วนจำกัดพิทักษ์การพิมพ์, 400 หน้า.

วัชรภรณ์ สุริยาภวัฒน์. (2552). *สถิติสำหรับวิทยาศาสตร์ชีวภาพ เล่ม 1 (STATISTICS FOR BIOLOGICAL SCIENCE)*. กรุงเทพฯ: สำนักพิมพ์จุฬาลงกรณ์มหาวิทยาลัย, 451 หน้า.

วัชรภรณ์ สุริยาภวัฒน์. (2552). *สถิติสำหรับวิทยาศาสตร์ชีวภาพ เล่ม 2 (STATISTICS FOR BIOLOGICAL SCIENCE)*. กรุงเทพฯ: สำนักพิมพ์จุฬาลงกรณ์มหาวิทยาลัย, 409 หน้า.