

١- بيانات المقرر		
المستوى: الرابع	اسم المقرر : Statistical theory (2)	كود المادة : Math 431
عدد الوحدات الدراسية: ٢ ساعة معتمدة نظري ٢ : تمارين: ١ عملي: ٠		التخصص : الإحصاء وعلوم الحاسب

For students undertaking this course, the aims are to: 1 - Study the hypothesis testing concerning one and two populations, tests concerning means, difference between means, proportion and difference between two proportions 2 - Study the hypothesis testing concerning the variance and the ratio of two variances 3 - Study the nonparametric tests 4 - Study the basic concepts in the theory of hypothesis testing 5 - Develop the methods for construction of Good tests	٢- هدف المقرر :
٣- المستهدف من تدريس المقرر	
a- Knowledge and Understanding On completing this course, students will be able to: a1 - Explain the hypothesis testing concerning one population a2 - Explain the hypothesis testing concerning two populations a3 - Understand the Chi-square tests a4 - Understand the nonparametric tests a5 - Define the basic concepts in the theory of hypothesis testing a6 - Understand the methods for construction of Good tests	أ- المعلومات و المفاهيم :
b- Intellectual Skills On completing this course, students will be able to: b1 - Distinguish between parametric and nonparametric tests b2 -Apply the Chi-square tests b3 - Distinguish between the methods for construction of Good tests	ب- المهارات الذهنية :
c- Professional and Practical Skills On completing this course, students will be able to: c1 - Describe the basic concepts in the theory of hypothesis testing c2 - compare between parametric and nonparametric tests c3 - Describe the methods for construction of Good tests	ج- المهارات المهنية الخاصة بالمقرر :
d- General and Transferable Skills On completing this course, students will be able to: d1 -Work effectively in a group d2 - Solve problems on a scientific basis d3 - Search for information	د- المهارات العامة :
1- The hypothesis testing concerning one population (mean, proportion , variance) 2- The hypothesis testing concerning two populations (difference between two means, difference between two proportions , ratio of two variance) 3- Chi-square tests (Goodness-of-fit Test , independence and homogeneity tests) 4- Nonparametric tests (Sign Test, Wilcoxon test, Mann-Whitney Test,	٤- محتوى المقرر :

Kruskal- Wallis test, Randomness test)		
5- Basic concepts in the theory of hypothesis testing (simple hypothesis, composite hypothesis, Type I error and type II error, power function of the test, Uniformly most powerful test)		
6- Methods for construction of Good tests (Neyman-Pearson theorem, Likelihood ratio test, Sequential probability ratio test)		
4.1 - Lectures		٥- أساليب التعليم و التعلم
4.2 - Tutorials		
Science students are usually normal. Therefore, no other teaching and learning methods are used.		٦- أساليب التعليم و التعلم للطلاب ذوي القدرات المحدودة
٧- تقويم الطلاب :		
1- Oral Exam.	to assess	b1-b3, c1-c3 , d2
2- Final Exam	to assess	a1-a6, b1-b3, c1-c3, d1-d3
3- Mid-Term Exam	to assess	a1-a3, b2
1- Oral Exam	week	15
2- Final Exam	week	15
3- Mid-Term Exam	week	6
- Mid-Term Examination	10	
- Final-Term Examination	80	
- Oral Examination	10	
- Practical Examination	0	
Total 100%		
٨- قائمة الكتب الدراسية و المراجع :		
Available at the department		أ- المذكرات
1 - Conover, W.J. Practical Nonparametric statistics, 2 ed. New York: John Wley & Sons, 1980		ب- الكتب ملزمة
2 - John, Freund E. Modern Elementary Statistics. 5 ed. Englewood Cliffs, New Jersey: Prentice hall international Editions, 1979		
Bickel, Peter J. and Doksum, Kjell A. (2001). Mathematical Statistics: Basic and Selected Topics. I (Second (updated printing 2007) ed.). Pearson Prentice-Hall.		ج- كتب مقترحة
http://en.wikipedia.org/wiki/Statistical_theory		د- دوريات علمية أو نشرات

(أ) مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسي

المحتويات للمقرر	اسبوع الدراسة	المعارف الرئيسية	مهارات ذهنية	مهارات مهنية	مهارات عامة
The hypothesis testing concerning one population (mean, proportion , variance)	1-2	a1	b1	c2	d1-d3
The hypothesis testing concerning two populations (difference between two means, difference between two proportions , ratio of two variance)	3-4	a2	b1	c1	d1-d3
Chi-square tests (Goodness-of-fit Test , independence and homogeneity tests)	5-6	a3	b2	c1, c2	d1-d3
Nonparametric tests (Sign Test, Wilcoxon test, Mann-Whitney Test, Kruscal- Wallis test, Randomness test)	7-9	a4	b1, b2	c1, c2	d1-d3
Basic concepts in the theory of hypothesis testing (simple hypothesis, composite hypothesis, Type I error and type II error, power function of the test, Uniformly most powerful test)	10-12	a5	b1, b2	c1, c2	d1-d3
Methods for construction of Good tests (Neyman-Pearson theorem, Likelihood ratio test, Sequential probability ratio test)	13-14	a6	b3	c3	d1- d3

أستاذ المادة : د محمد مصطفى جاد

رئيس مجلس القسم العلمي : أ.د. مجدى الياس فارس