توصيف مقرر دراسي

جامعة : المنصورة
كلية : العلـــــوم
قســم : الرياضيات

١ـ بيانات المقرر		
كود المادة : Math 333	**اسم المقرر : Statistics Theory (1)**	**المستوى: الثالث**
التخصص : الإحصاء وعلوم الحاسب	**عدد الوحدات الدراسية: ٣ ساعة معتمدة نظرى ٢: تمارين: ٢ عملى: ٠**	

٢ـ هدف المقرر :	**For students undertaking this course, the aims are to:** 1 - Outline the basic information of different types of samples and the sampling distributions 2 - Study the properties of estimators 3 - Study the methods of point estimation 4 - Enable the student to use the confidence interval estimation for the population parameters
٣ـ المستهدف من تدريس المقرر	
أـ المعلومات و المفاهيم :	**a- Knowledge and Understanding** **On completing this course, students will be able to:** a1-Acquire an Understanding of the different types of samples. a2 - Identify the sampling distributions of the sample statistics. a3 - understand the ideas of bias, consistency, sufficiency and minimum variance unbiased estimators a4 - Explain the maximum likelihood estimator , the method of moments estimator , the least squares estimator , the Bayesian estimator and the decision function approach a5 - Recognize the confidence interval for parameters a 6- List the sample size estimation
ب- المهارات الذهنية :	**b- Intellectual Skills** **On completing this course, students will be able to:** b1 - develop and apply the methods of selecting the random samples. b2 - distinguish between the sampling distribution and the usual distribution b3 -Apply the methods of finding the point estimators for the unknown population parameters b4 - Construct the interval estimation for the unknown parameters
ج- المهارات المهنية الخاصة بالمقرر :	**c- Professional and Practical Skills** **On completing this course, students will be able to:** c1 - Critically use the table of random numbers in selecting simple random samples. c2 - differentiate between one and two sample distribution c3 - Apply the properties of the estimators in determining the best one. c4 - Compare between different methods of point estimation c5 - Constructing the confidence intervals
د- المهارات العامة :	**d- General and Transferable Skills** **On completing this course, students will be able to:** d1 - Collect and analyze the data d2 - Solve the problems on a scientific basis d3 - Search for information d4 - Present results in oral and written means

1. Types of samples: simple random sample, stratified, systematic and cluster samples 2. The sampling distribution of the mean, variance and the proportion 3. The sampling distribution of the difference between means , between the proportions and the ratio of variances 4. Properties of a good estimator: unbiasedness, efficiency, consistency and sufficiency 5. The Information function. 6. Methods of point estimation: method of moments, method of maximum likelihood, method of least squares, Bayesian method and the decision function approach 7. The confidence interval of the unknown parameter of one population. 8. The confidence interval of the difference between two unknown means, difference between two proportion and the ratio of the variances of two populations. 9. Estimation of the sample size	**٤- محتوى المقرر :**
1- Lectures 2- Tutorials	**٥- أساليب التعليم و التعلم :**
The same as normal students, only skeletal disabilities are allowed in the faculty of science.	**٦- أساليب التعليم و التعلم للطلاب ذوى القدرات المحدودة :**
٧- تقويم الطلاب :	
1- Final exam to assess a1- a6, b1 - b5 , c1 - c5 , d2 2- Oral exam to assess a1 - a6 , b1, b2,d1-d4 3- Mid-Term Exam to assess a1 , a2, b1 , b2 , c1 , c2 , d2	**أ- الأساليب المستخدمة**
1- Final exam week 16 2- Oral exam week 16 3- Mid-Term Exam week 6	**ب- التوقيت**
- Mid-Term Examination 10% - Final-Term Examination 80% - Oral Examination 10% - Practical Examination 0 Total 100%	**ج- توزيع الدرجات**
٨- قائمة الكتب الدراسية و المراجع :	
- Lecture Notes	**أ- المذكرات**
Robert V. Hogg & Allan T. Crig, Introduction to Mathematical Statistics. Douglas, C. and George, C. (2003). Applied statistics and probability for engineering. John Wiley & Sons. Inc	**ب- الكتب ملزمة**
Hogg, R.V. and Tanis, E.A. (2006). Probability and Statistical Inference, 7th edition. Prentice Hall.	**ج- كتب مقترحة**
http://en.wikipedia.org/wiki/Probability_theory	**د- دوريات علمية أو نشرات ... الخ**

(أ) مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسي

المحتويات للمقرر	اسبوع الدراسة	المعارف الرئيسية	مهارات ذهنية	مهارات مهنية	مهارات عامة
Types of samples: simple random sample, stratified, systematic and cluster samples	1	a1	b1	c1	d1 - d4
The sampling distribution of the mean, variance and the proportion	2-3	a2	b2	c2	d1 - d4
The sampling distribution of the difference between means , between the proportions and the ratio of variances	4	a2	b2	c3	d2 - d4
Properties of a good estimator: unbiasedness, efficiency, consistency and sufficiency	5-6	a3	b3	c3	d2 - d4
The Information function.	7	a3	b3	c3	d2 - d4
Methods of point estimation: method of moments, method of maximum likelihood, method of least squares, Bayesian method and the decision function approach	8-9	a4	b3	c4	d2 - d4
The confidence interval of the unknown parameter of one population.	10-11	a5	b4	c5	d2 - d4
The confidence interval of the difference between two unknown means, difference between two proportion and the ratio of the variances of two populations.	12-13	a5	b4	c5	d2 - d4
Estimation of the sample size	14	a6	b4	c5	d2 - d4

أستاذ المادة : د. فاتن عبد الله حافظ شيحه

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