

١- بيانات المقرر		
المستوى: الرابع	اسم المقرر: Stochastic Processes (1)	كود المادة : Math 432
عدد الوحدات الدراسية: ٢ ساعة معتمدة نظري ٢ : تمارين: ١ عملي: ٠		البرنامج : إحصاء وعلوم الحاسب

For students undertaking this course, the aims are to: 1- Define the stochastic processes, the parameters and state space of the process, types of stochastic processes. 2- Study some examples of stochastic processes such that: Markov chains, Markov processes, Poisson processes, birth-death process, and branching processes. 3- Study some generalization of stochastic processes. 4- Solve some examples for our course as the revision.		٢- هدف المقرر :
٣- المستهدف من تدريس المقرر		
a- Knowledge and Understanding On completing this course, students will be able to: a1-demonstrate knowledge and understanding on the different types of stochastic processes. a2- know and understand the properties of the Markov chains. a3-Understand the basic concepts of Poisson processes. a4-be aware of the types of Markov processes. a5-know the higher transition probabilities for the Markov chains. a6-be familiar with some processes such as branching process and birth-death process.		أ- المعلومات و المفاهيم :
b- Intellectual Skills On completing this course, students will be able to: b1-Distinguish between the types of the states for the Markov chain. b2-Distinguish between the types of the stochastic processes. b3-Use the transition probability matrix in solving problems in higher transition. b4- Determine the higher transition probabilities for the Markov chains.		ب- المهارات الذهنية :
c- Professional and Practical Skills On completing this course, students will be able to: c1- use the skills acquired from learning Markov chains and Markov processes to study biological phenomena. c2-calculate some statistical measures for the Poisson processes. c3-solve some problems related to the birth-death and branching processes.		ج- المهارات المهنية الخاصة بالمقرر :
d- General and Transferable Skills On completing this course, students will be able to: d1-Solve problems. d2-Work in team.		د- المهارات العامة:
1- Introduction in Stochastic processes 2- Markov Chain 3- Poisson Processes and Their Generalizations 4-Birth-Death Processes 5-Random walk 6- Branching Processes		٤- محتوى المقرر:

1-Lectures 2-Tutorials 3-working sheets 4- Quizzes	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 ذوي القدرات المحدودة
٧- تقويم الطلاب :	
1- Oral Exam. to assess a1-a3,b1-b2,d1-d3 2- Final Exam to assess a1-a3,b1-b2,c1-c3 3- Mid-Term Exam to assess a1-a2,b1-b2,c1-c2	أ- الأساليب المستخدمة
1- Oral Exam week 16 2- Final Exam week 16 3- Mid-Term Exam week 7	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 :	
Available at the dept.	أ- المذكرات
1-Ross, M.S. (1970). Applied probability models with optimization applications. Holden-Day, San Francisco, USA. 2-Medhi, J (1981). Stochastic processes. Wiley Eastern Limited. 3- Ross, M.S. (1996). Stochastic processes. John Wiley & Sons, INC, 2 nd Edition,third edition.	ب- الكتب ملزمة
1-Ross, .S. Introduction to probability models. Fifth edition. 2-Taylor, H.M, An introduction to stochastic modeling.	ج- كتب مقترحة
http://en.wikipedia.org/wiki/Stochastic_process	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
1-Introduction in Stochastic processes	1	a1	b2		
2-Markov Chain	2-5	a2,a5	b1,b3	c1	d1,d2
3-Poisson Processes and Their Generalizations	6-7	a3	b4	c2	d1
4-Birth-Death Processes	8-9	a6	b2	c3	d1
5-Random walk	10-11	a2	b3		d1
6-Branching Processes	12-13	a6	b2	c3	d1

أستاذ المادة : أ.د./ محمود طه ياسين

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