Course Code & No	Math 201	ريض 201	رقم المقرر ورمزه
Course Name	: Mathematics for Pharmacy	الرياضيات للصيدله	اسم المقرر
Credit Hours	2 (2 + 0 + 1)	2 (2 + 0 + 1)	عدد الساعات المعتمدة
Pre-requisite	None	لا يوجد	المتطلب السابق

General Description	توصيف عام
This course is designed to provide calculus for students of pharmacy who intend to apply these concepts in their professional course work. Students are expected to develop an understanding of the derivative as an instantaneous rate of change and use this definition to find derivatives of many types of functions and combinations of these functions including algebraic, trigonometric, exponential and logarithmic functions. They also will develop the idea that integration is the inverse operation to differentiation. Students are also exposed to linear first-order differential equations and their applications in health sciences.	يزود هذا المقرر طلاب العلوم الصحية بالرياضيات اللازمة لهم في مقرراتهم المهنية. ويدرس الطلاب في هذا المقرر المشتقات بصفتها معدل التغير اللحظي ويقومون باستخدام هذا التعريف لإيجاد مشتقات العديد من أنواع الدوال مثل الدوال الجبرية، والمثلثية، والأسية، واللوغاريثمية. كما يدرس الطلاب تكامل الدوال بأنواعها المختلفة كعملية عكسية للاشتقاق. هذا بالإضافة إلى المعادلات التفاضلية وتطبيقاتها في العلوم الصحية.

Course Objectives	أهداف المقرر
Upon successful completion of this course, students will be able to: • Show understanding of the basic principles of calculus. • Gain an understanding of basic single-variable calculus and its applications including functions, limits, differentiation, integration and differential equations and	

their applications. • Be exposed to the properties of exponential functions and inverse functions and logarithms. • Show understanding of the integration of various functions including algebraic, trigonometric, exponential and inverse functions. • Show understanding of the application of derivatives in analysis of curves and evaluating maxima and minima. • Show understanding of the various techniques of integration including integration by substitution, partial fractions, integrating factor and integration by parts. • Apply the fundamental theorem of calculus to evaluate definite integrals. • Be familiar with separable linear first-order differential equations and their solution by finding the antiderivative.	

Course Outlines	**مفردات المقرر**

• Real Numbers.
• Functions:
  ○ Linear functions.
  ○ Other simple functions.
• The derivatives:
  ○ Increments and rates.
  ○ Limits.
  ○ Continuous functions.
  ○ The derivative.	

○ Derivatives of algebraic functions. ○ Derivatives of products and quotients. ○ Higher derivatives. ○ Derivatives of composite functions. • Exponential and Logarithm Functions: ○ Exponential function. ○ Inverse functions and logarithm. ○ Plots and graphs: ○ Linear, semi-log, log-log plots. ○ Linearization of nonlinear plots. ○ Natural logarithms and exponents. ○ Exponential growth and decay. • Application of Derivatives: ○ Analysis of curves. • Maxima and minima and their applications.Integration: ○ Antiderivatives ○ Integration techniques: ○ Integration by substitution. ○ Method of partial fractions ○ Integration by parts. ○ Integrating factor. ○ The definite integral. ○ Areas. ○ Volumes. ○ The natural logarithm. • Differential Equations: ○ Separable equations. ○ Linear first-order equations. ○ Applications.	

References	المراجع
• Arya JC, Lardner RW. ***Mathematics for the Biological Sciences***. Prentice-Hall **ISBN:** 0-13-562439-8. **Optional Readings:** • Fleming W. ***Applied Calculus for Management, Social, and Life Sciences***. 1991. Prentice Hall. **ISBN**: 0-13-039769-5. • Berkey DD. ***Calculus for Management, Social, and Life Sciences.*** 1994. W B Saunders Co. 3rd edition. **ISBN**: 0030761638. • Berkey DD. ***Applied Calculus***. 3rd edition. 1994. Saunders College Publishers, USA. **ISBN:** 0-03-076173-5. • Cullen MR. ***Mathematics for the Biosciences***. 1992. PWS Publishers. Cbls\Ceramic Books & Literature. **ISBN**: 1-87-890757-3. • Hughes-Hallet. ***Calculus***. 1994. John Wiley & Sons Inc, international edition, **ISBN:** 0-47-111461-8. • Gentry RD. ***Introduction to Calculus for the Biological and Health Sciences***. 1978. Addison-Wesley, USA, **ISBN**: 0-20-102477-2.	

• Goldstein LJ, Lay DC, Schneider DI. ***Mathematics for the Management, Life and Social Sciences***. 1984. Prentice-Hall, USA. RA, Ziegler MR, Byleen K**.** ***College*** Barnett ***Mathematics for Business***	