



## Palestine Technical University-Kadoorie Course Syllabus



<b>Faculty:</b>																	
<b>Course Title:</b>	Ordinary differential equations	<b>Course Number:</b>	15010203														
<b>Year:</b>	2015/2016	<b>Semester:</b>	spring														
<b>Department:</b>	math	<b>Designation:</b>															
<b>Prerequisite(s):</b>	Calculus 2																
<b>Instructor:</b>	Jasem Badran																
<b>Instructor's e-mail:</b>	J_badran@yahoo.com																
<b>Office Hours:</b>	Sun , tue , thi. 12 - 2																
<b>Class Time:</b>	10 11 , 11 – 12 , 9:30 - 11	<b>Class Room:</b>	5316														
<b>Course description:</b>	<p>A first course in ordinary differential equations, including analytical solution methods, elementary numerical methods, and modeling.</p> <p>Topics to be covered include: first-order equations including integrating factors; second-order equations including variation of parameters; series solutions; Laplace transforms;</p>																
<b>Textbook(s):</b>	Elementary differential equations																
<b>Other required material (References):</b>	-																
<b>Course objectives:</b>	<p>Differential equations have applications in physics, astronomy, chemistry, biology, engineering, population studies, finance and pretty much anything you can think of. It is the underlying language of the study of chaotic systems. The goal of this course is to give you a good sense of the power of differential equations, and equip you with the basic tools with which to tackle them</p> <p>...</p>																
<b>Topics covered and Calendar:</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Topics</th> <th style="text-align: center;">Weeks</th> </tr> </thead> <tbody> <tr> <td>Introduction: basic models and examples, direction fields, classification, integrating factors for first-order equations.</td> <td style="text-align: center;">2</td> </tr> <tr> <td>First-order equations: existence and uniqueness theorems, exact equations.</td> <td style="text-align: center;">3</td> </tr> <tr> <td>. Second-order linear homogeneous equations</td> <td style="text-align: center;">4</td> </tr> <tr> <td>higher order</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: center;">Series solutions: power series method, singular point</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Laplace transforms</td> <td style="text-align: center;">2</td> </tr> </tbody> </table>			Topics	Weeks	Introduction: basic models and examples, direction fields, classification, integrating factors for first-order equations.	2	First-order equations: existence and uniqueness theorems, exact equations.	3	. Second-order linear homogeneous equations	4	higher order	3	Series solutions: power series method, singular point	2	Laplace transforms	2
Topics	Weeks																
Introduction: basic models and examples, direction fields, classification, integrating factors for first-order equations.	2																
First-order equations: existence and uniqueness theorems, exact equations.	3																
. Second-order linear homogeneous equations	4																
higher order	3																
Series solutions: power series method, singular point	2																
Laplace transforms	2																
<b>Grading Plan:</b>	<p>First Exam (30)</p> <p>Second Exam (30)</p> <p>Semester works (0)</p> <p>Final Exam (40) <span style="float: right;">Will be announced by the registrar</span></p>																
<b>General Notes: Class Policies</b>	<p>1-University regulation Regarding absentees will be Applied</p> <p>2-Names will be read at the beginning of the class and anyone coming after that will be marked absent</p> <p>3- All mobiles must be switched off during class</p>																
<b>Prepared by:</b>	Jasem Badran	<b>Date:</b>	6/3/2016														