

## The syllabus of Mathematical Analysis

课程基本信息 (Course Information)					
课程代码 (Course Code)	MA043	学时 (Credit Hours)	192	学分 (Credits)	12
课程名称 (Course Name)	(中文) 数学分析				
	(英文) Mathematical Analysis				
课程属性 (Course Type)	公共必修课				
开课院系 (School)	(英文) Department of mathematics	开课学期 (Term)	(英文) Two Terms		
先修课程 (Prerequisite course)	(英文)				
授课教师 (Instructors)	Weimin Li				
课程简介 (Description) 300-500 字	<p style="text-align: center;">Mathematical analysis, in which ideas and skills are diversified and plentiful, is a fundamental course of modern mathematical science. It is one of the most comprehensively used subjects in science and technology. Mathematical analysis is an indispensable basic course for any student who majors in science and engineering.</p> <p style="text-align: center;">The main content of mathematical analysis is divided into two parts: single variable and multivariable. This course concentrates on the systematic presentation of ideas, concepts, methods and techniques in the foundations of mathematics. This course aims at enhancing student's reasoning and analytical skills, improving their qualifications in mathematics and developing their problem-solving capabilities.</p> <p style="text-align: center; color: green;">(英文)</p>				
课程教学大纲 (course syllabus)					

<p>*学习目标(Learning Outcomes)</p>	<p>By completing the course, students should:</p> <p>(1) master analytical skills and techniques for solving problems that arise in applications of mathematics and other science branches.</p> <p>(2) be able to familiarize themselves with concepts, skills and techniques of differential and integral;</p> <p>(3) have a clear understanding of the ideas of mathematical analysis as a solid foundation for subsequent courses in mathematics and other disciplines.</p>																																																																													
<p>*教学内容、进度安排及要求 (Class Schedule &amp; Requirements)</p>	<table border="1"> <thead> <tr> <th data-bbox="480 600 679 759">教学内容 topics</th> <th data-bbox="679 600 783 759">学时 Credit hours</th> <th data-bbox="783 600 967 759">教学方式 Teaching methodology</th> <th data-bbox="967 600 1118 759">作业及要求 tasks</th> <th data-bbox="1118 600 1294 759">基本要求 Intended learning outcomes</th> <th data-bbox="1294 600 1458 759">考查方式 Assessment methods</th> </tr> </thead> <tbody> <tr> <td data-bbox="480 759 679 846">Real number system</td> <td data-bbox="679 759 783 846">13</td> <td data-bbox="783 759 967 846">Class teaching</td> <td data-bbox="967 759 1118 846"></td> <td data-bbox="1118 759 1294 846">Understanding &amp; mastering</td> <td data-bbox="1294 759 1458 846">HW &amp; Test</td> </tr> <tr> <td data-bbox="480 846 679 934">Limit, continuity</td> <td data-bbox="679 846 783 934">18</td> <td data-bbox="783 846 967 934">Class teaching</td> <td data-bbox="967 846 1118 934"></td> <td data-bbox="1118 846 1294 934">Understanding &amp; mastering</td> <td data-bbox="1294 846 1458 934">HW &amp; Test</td> </tr> <tr> <td data-bbox="480 934 679 1021">Differentials</td> <td data-bbox="679 934 783 1021">17</td> <td data-bbox="783 934 967 1021">Class teaching</td> <td data-bbox="967 934 1118 1021"></td> <td data-bbox="1118 934 1294 1021">Understanding &amp; mastering</td> <td data-bbox="1294 934 1458 1021">HW &amp; Test</td> </tr> <tr> <td data-bbox="480 1021 679 1108">Mean-value Ths</td> <td data-bbox="679 1021 783 1108">18</td> <td data-bbox="783 1021 967 1108">Class teaching</td> <td data-bbox="967 1021 1118 1108"></td> <td data-bbox="1118 1021 1294 1108">Understanding &amp; mastering</td> <td data-bbox="1294 1021 1458 1108">HW &amp; Test</td> </tr> <tr> <td data-bbox="480 1108 679 1196">Integrals</td> <td data-bbox="679 1108 783 1196">17</td> <td data-bbox="783 1108 967 1196">Class teaching</td> <td data-bbox="967 1108 1118 1196"></td> <td data-bbox="1118 1108 1294 1196">Understanding &amp; mastering</td> <td data-bbox="1294 1108 1458 1196">HW &amp; Test</td> </tr> <tr> <td data-bbox="480 1196 679 1283">Improper integral</td> <td data-bbox="679 1196 783 1283">17</td> <td data-bbox="783 1196 967 1283">Class teaching</td> <td data-bbox="967 1196 1118 1283"></td> <td data-bbox="1118 1196 1294 1283">Understanding &amp; mastering</td> <td data-bbox="1294 1196 1458 1283">HW &amp; Test</td> </tr> <tr> <td data-bbox="480 1283 679 1370">Differential equations</td> <td data-bbox="679 1283 783 1370">17</td> <td data-bbox="783 1283 967 1370">Class teaching</td> <td data-bbox="967 1283 1118 1370"></td> <td data-bbox="1118 1283 1294 1370">Understanding &amp; mastering</td> <td data-bbox="1294 1283 1458 1370">HW &amp; Test</td> </tr> <tr> <td data-bbox="480 1370 679 1458">Multi-differential</td> <td data-bbox="679 1370 783 1458">19</td> <td data-bbox="783 1370 967 1458">Class teaching</td> <td data-bbox="967 1370 1118 1458"></td> <td data-bbox="1118 1370 1294 1458">Understanding &amp; mastering</td> <td data-bbox="1294 1370 1458 1458">HW &amp; Test</td> </tr> <tr> <td data-bbox="480 1458 679 1545">Multi-integrals</td> <td data-bbox="679 1458 783 1545">19</td> <td data-bbox="783 1458 967 1545">Class teaching</td> <td data-bbox="967 1458 1118 1545"></td> <td data-bbox="1118 1458 1294 1545">Understanding &amp; mastering</td> <td data-bbox="1294 1458 1458 1545">HW &amp; Test</td> </tr> <tr> <td data-bbox="480 1545 679 1632">Curve-surface Integral</td> <td data-bbox="679 1545 783 1632">19</td> <td data-bbox="783 1545 967 1632">Class teaching</td> <td data-bbox="967 1545 1118 1632"></td> <td data-bbox="1118 1545 1294 1632">Understanding &amp; mastering</td> <td data-bbox="1294 1545 1458 1632">HW &amp; Test</td> </tr> <tr> <td data-bbox="480 1632 679 1720">Series</td> <td data-bbox="679 1632 783 1720">18</td> <td data-bbox="783 1632 967 1720">Class teaching</td> <td data-bbox="967 1632 1118 1720"></td> <td data-bbox="1118 1632 1294 1720">Understanding &amp; mastering</td> <td data-bbox="1294 1632 1458 1720">HW &amp; Test</td> </tr> </tbody> </table> <p>(英文)</p>						教学内容 topics	学时 Credit hours	教学方式 Teaching methodology	作业及要求 tasks	基本要求 Intended learning outcomes	考查方式 Assessment methods	Real number system	13	Class teaching		Understanding & mastering	HW & Test	Limit, continuity	18	Class teaching		Understanding & mastering	HW & Test	Differentials	17	Class teaching		Understanding & mastering	HW & Test	Mean-value Ths	18	Class teaching		Understanding & mastering	HW & Test	Integrals	17	Class teaching		Understanding & mastering	HW & Test	Improper integral	17	Class teaching		Understanding & mastering	HW & Test	Differential equations	17	Class teaching		Understanding & mastering	HW & Test	Multi-differential	19	Class teaching		Understanding & mastering	HW & Test	Multi-integrals	19	Class teaching		Understanding & mastering	HW & Test	Curve-surface Integral	19	Class teaching		Understanding & mastering	HW & Test	Series	18	Class teaching		Understanding & mastering	HW & Test
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<p>考核方式 (Assessment methods and Grading)</p>	<ul style="list-style-type: none"> <li>• period aligned test grading</li> <li>• examination on paper (closed book)</li> <li>• Exercises: period aligned evaluation</li> </ul> <p>(英文)</p>																																																																													

<p>教材或参考资料 (Textbooks &amp; Other Reading Materials)</p>	<p>(1) &lt;&lt;Mathematical Analysis&gt;&gt; (Seventh Edition), Tom M. Apostol  (2) &lt;&lt;Calculus and its application&gt;&gt; (Ninth Edition) L.J.Goldstein, D.C.Lay, D.I.Schneider. Prentice Hall, 2001.  (3) &lt;&lt;Advanced Calculus&gt;&gt; (Third Edition) R.C. Buck, McGraw-Hill Book Company  (英文)</p>
<p>备注 (Notes)</p>	<p>HW stands for homework (英文)</p>