



## Programme of Module "Advanced Algebra 1"

- Code: DT0122
- Type of course unit: Compulsory (Master Degree in Mathematics curriculum Generale)
- Level of course unit: Postgraduate Degrees
- Semester: 1

Number of ects credits: (Master Degree in Mathematics) 6 (workload 150 hours)

Teachers: Anna Guerrieri

<b>1</b>	<b>Course objectives</b>	Commutative algebra
<b>2</b>	<b>Course content and learning outcomes (dublin descriptors)</b>	<p>Topics of the module include:</p> <ul style="list-style-type: none"> <li>• Rings and ideals</li> <li>• Nilradical</li> <li>• Modules</li> <li>• Tensor product</li> <li>• Fraction rings and modules</li> <li>• Primary decomposition</li> <li>• Integral dependence</li> <li>• Valuations</li> <li>• Chain conditions</li> <li>• Noetherian rings</li> <li>• Artinian rings</li> <li>• Dedekind rings and DVR</li> </ul> <p>On successful completion of this module, the student should :</p> <ul style="list-style-type: none"> <li>• At the end of the course the student should be able to know perfectly the basics on ring theory and well the main concepts of commutative algebra up to Dedekind rings</li> </ul>
<b>3</b>	<b>Course prerequisites</b>	Algebra 1 and 2 (now Algebra 12 credits)
<b>4</b>	<b>Teaching methods and language</b>	<p>Theory, exercises, quizzes</p> <p><b>Language:</b> English</p> <p><b>Reference textbooks</b></p> <ul style="list-style-type: none"> <li>• M.F. Atiyah/ I.G. Macdonald, <i>introduzione all'algebra commutativa</i>. Feltrinelli.</li> </ul>
<b>5</b>	<b>Assessment methods</b>	Oral