



### LINEAR ALGEBRA

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| <b>Enrollment year</b>     | 2015/2016                                                                                                                                                                                                                                                           |
| <b>Academic year</b>       | 2015/2016                                                                                                                                                                                                                                                           |
| <b>Regulations</b>         | DM270                                                                                                                                                                                                                                                               |
| <b>Academic discipline</b> | MAT/03 (GEOMETRY)                                                                                                                                                                                                                                                   |
| <b>Department</b>          | DEPARTMENT OF PHYSICS                                                                                                                                                                                                                                               |
| <b>Course</b>              | PHYSICS                                                                                                                                                                                                                                                             |
| <b>Curriculum</b>          | PERCORSO COMUNE                                                                                                                                                                                                                                                     |
| <b>Year of study</b>       | 1°                                                                                                                                                                                                                                                                  |
| <b>Period</b>              | 1st semester (01/10/2015 - 15/01/2016)                                                                                                                                                                                                                              |
| <b>ECTS</b>                | 9                                                                                                                                                                                                                                                                   |
| <b>Lesson hours</b>        | 84 lesson hours                                                                                                                                                                                                                                                     |
| <b>Language</b>            | ITALIAN                                                                                                                                                                                                                                                             |
| <b>Activity type</b>       | ORAL TEST                                                                                                                                                                                                                                                           |
| <b>Teacher</b>             | FREDIANI PAOLA (titolare) - 6 ECTS<br>PERNAZZA LUDOVICO - 3 ECTS                                                                                                                                                                                                    |
| <b>Prerequisites</b>       | Elementary algebra and some basic calculus.                                                                                                                                                                                                                         |
| <b>Learning outcomes</b>   | We would like to give the elementary notions of linear algebra to introduce the student to the vector and matrix language. Great relevance will be given to applications to linear system and to analytic geometry.                                                 |
| <b>Course contents</b>     | Linear algebra<br><br>Extended summary<br>Geometric vectors. Vector Spaces generators and linear dependence, basis.<br>Linear systems, matrix rank. Determinant, linear problems coordinates and change of coordinates.<br>Operators, eigenvalues and eigenvectors. |

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|                                                    | <p>Diagonalization.<br/>         Bilinear forms and scalar products.<br/>         Lines and plane in the space, example of curves and of surfaces (conics, cone cylinders).</p> |
| <b>Teaching methods</b>                            | Lessons                                                                                                                                                                         |
| <b>Reccomended or required readings</b>            | <p>E. Sernesi: "Geometria 1", Bollati Boringhieri.<br/>         S. Lang: "Algebra Lineare", Bollati Boringhieri.<br/>         Dispense fornite dal docente.</p>                 |
| <b>Assessment methods</b>                          | Written and oral exam                                                                                                                                                           |
| <b>Further information</b>                         | Written and oral exam                                                                                                                                                           |
| <b>Sustainable development goals - Agenda 2030</b> | <a href="#">\$ b  legenda sviluppo sostenibile</a>                                                                                                                              |