



Programme of Course "Geometria Superiore 2 mod. I"

- Code: FN
- Type of course unit: Elective (Master Degree in Mathematics curriculum Generale)
- Level of course unit: Postgraduate Degrees
- Semester:

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

Teachers: Barbara Nelli

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| 1 | <b>Course objectives</b>   | Si prevede che lo studente acquisisca le nozioni di base di geometria Riemanniana e sia in grado di usare gli strumenti acquisiti per risolvere problemi su tale tema.  |
| 2 | <b>Course content and learning outcomes (dublin descriptors)</b> | <p>Topics of the module include:</p> <ul style="list-style-type: none"> <li>• Differentiable manifolds. Riemannian metrica. Affine and riemannian connection. Geodesics and convex neighborhood. Curvatures. Jacobi fields. Isometric Immersions. Complete manifolds. Hopf-Rinow Theorem and Hadamard theorem.</li> </ul> <p>On successful completion of this module, the student should :</p> <ul style="list-style-type: none"> <li>• The student should have knowledge of the basic theory of Riemannian geometry and develop some topic of this theory.</li> <li>• The student should be able to solve problems about Riemannian geometry. Moreover the student should be able to recognize when the acquired notions of Riemannian geometry are necessary to the comprehension of other topics.</li> <li>• The student should be able to understand problems of riemannian geometry and recognize the best method to solve them.</li> <li>• The student should be able to explain the statements and the proofs of the theorems about riemannian manifolds.</li> <li>• The student should have acquired the ability of reading and understanding advanced text of riemannian geometry</li> </ul> |
| 3 | <b>Course prerequisites</b>                                      | Basic notions of differential geometry and analysis in several variables.   |
| 4 | <b>Teaching methods and language</b>                             | <p>Reading course</p> <p><b>Language:</b> Italian</p> <p><b>Reference textbooks</b></p> <ul style="list-style-type: none"> <li>• M. P. Do Carmo, <i>Riemannian Geometry</i>. Birkhauser.</li> </ul>   |
| 5 | <b>Assessment methods</b>  | homework and oral exam  |