L. **Rifford :*Optimal transport in sub-riemannian geometry***

We shall begin with a small introduction in the sub-riemannian geometry by introducing the crucial concept of singular curves and by proving the famous theorem of Chow-Rashevsky. Then, we shall give many examples of sub-riemannian structures and taking a quite particular attention on the regularity of natural sub-riemannian objects such as the geodesic or the distance SR. After, we shall give a short introduction to the theory of the optimal transport. We shall study problems of Monge and Kantorovitch and shall explain how to obtain very general optimal results of existence and uniqueness for applications of transport. Finally, we are interested in the problem of Monge for the sub-riemannian quadratic cost and shall make the link with phenomena of sub- riemanian curvature. This course requires basic knowledge in analysis, differential calculus and theory of the measure.