Introdução à Geometria Simplética e Poisson

Programa:

1. Álgebra linear simplética.
2. Formas simpléticas. Exemplos.
3. Truque de Moser. Formas normais.
4. Fibrações simpléticas, folheações simpléticas.
5. Ações hamiltonianas e mapas momento. Princípio de Noether e redução.
6. New from old. Cirurgias, blow-up, twists, normal connected sum.
7. Introdução à Geometria Poisson: A folheação simplética. Estruturas Dirac. Coordenadas de Weinstein. Algebroides de Lie.

Bibliografia:

1. Vladimir Igorevich Arnol'd, *Mathematical methods of classical mechanics*, Vol. 60. Springer Science & Business Media, 2013.
2. Jean-Paul Dufour and Nguyen Tien Zung, *Poisson structures and their normal forms*, Vol. 242. Springer Science & Business Media, 2006.
3. Marius Crainic and Rui Loja Fernandes, *Integrability of Poisson brackets*, Journal of Differential Geometry **66**, no. 1 (2004): 71–137.
4. Rui Loja Fernandes and Ioan Marcut, *Lectures on Poisson Geometry*, https://faculty.math.illinois.edu/ ruiloja/ Math595/Spring14/book.pdf
5. Marco Gualtieri, *Generalized complex geometry*, Annals of Mathematics, Second Series, Vol. 174, No. 1 (July, 2011), pp. 75–123.
6. Eckhard Meinrenken, *Symplectic Geometry*, http://www.math.toronto.edu/mein/teaching/LectureNotes/sympl.pdf
7. Eckhard Meinrenken, *Introduction to Poisson Geometry*, http://www.math.toronto.edu/mein/teaching/MAT1341 PoissonGeometry/Poisson8.pdf
8. Alan Weinstein, *The local structure of Poisson manifolds*, J. Differential Geom. Volume 18, Number 3 (1983), 523–557.