

## POSSIBLE TOPICS FOR PRESENTATION FOR ALGEBRA II

Here is a list of possible topics for your presentation. You may pick topics outside this list. Please discuss your possible presentation topic with me before before you finalise anything.

1. A point on a variety is non-singular if and only if its local ring is regular.
2. Completions of rings. Complete local rings. Examples. Structure of complete local rings containing a field.
3. Sheaf theory and the sheaf associated to a module over a commutative ring.
4. Cohen-Macaulay rings.
5. Structure of injective modules over a Noetherian commutative ring.
6. Gorenstein Noetherian rings and the minimal injective resolution of such a ring.
7. Normalisation of a ring and the desingularization of curves.