Title: Properties of flat origamis

Abstract: Origami can be seen as a form of art but there is also a rich geometric structure behind it. In this seminar we will take a closer look at a particular class of origami, those that fold flat. In order to do so we look at the crease pattern of the origami, that is the set of lines that crosses the sheet of paper once we open up the finished origami, so that it can be seen as a graph embedded in a square. We will see that if an origami can be folded flat then its crease pattern satisfies some natural properties. In particular we will see that under certain hypotheses we will be able to give necessary and sufficient conditions for an origami to fold flat.

Bibliography:

- F. Poma. *On the flat foldability of a crease pattern.* 2009.
- T. Hull. *On the mathematics of flat origamis.* 1994.
- M. Bern, B. Hayes. *The complexity of flat origami* (Chapter 1). 1996
- J. Schneider. *Flat foldability of origami crease patterns.* 2004.