## Guidelines for a PedroSoc Talk:

1 This is not a presentation on "new results in the area X", in other words, your main aim is not to present interesting results to people, but actually to prove or "semi-prove" them.

2 This does not mean one must prove careful all the results used. Rather one can and should rely in the intuition of the listeners. For example, one can explain with pictures that the fundamental group of the circle is Z, pointing out it needs a more technical proof.

3 Hard or unproven results can be used, as long as they are stated clearly, intuitively explained and exemplified. For example, one might use Weierstrass Factorisation Theorem to prove something regarding the Zeta function, but one should state the theorem clearly and give examples with trigonometric functions.

4 The listeners has to improve as a mathematician by listening to the talk. One might structure the talk by proving a certain theorem or exemplifying a certain technique. That is the allowances in 2 and 3 are made with the goal of proving a certain given theorem. A BAD TALK IS ONE IN WHICH THE STUDENTS DOES NOT LEARN HOW TO DO OR PROVE THINGS (EVEN IF HE LEARN THAT SOME THINGS ARE TRUE). For example, a good talk can teach how to use Lovász Local Lemma in application for combinatorial proofs without actually proving the theorem. A bad talk states stronger versions of this lemma only hinting at proving them without any concrete proof or application of the results. (As an easier example) one might give a goog talk by assuming the spectral theorem for finite dimensional self-adjoint operators to prove certain results using graphs adjacency matrices, without actually proving the result. A bad talk would be to prove this result, since this is already done in regular courses.

Finally, a good talk would be to prove the Fundamental Theorem of Algebra (using that the fundamental group of the circle is Z and using Liouville's Theorem and Using Galois Theory). A bad talk would be to try to introduce Galois Theory, Complex Analysis and Fundamental Group theory all at once in the same lecture without having time to explain the Fundamental Theorem of Algebra and its proofs, which was the goal.

5 Remeber to always ask yourself: what will the listeners take away from that?

6 Plan your talk for the amount of weeks you are given, including misunderstandings by the audience, questions and even second guesses on your own material (we all have been there). If you need two weeks, do ask for them, but do not rush to fit 2 weeks worth if content in one. It is natural to cover much less content than we think we will, so do plan for that!

7 Most importantly: have fun and let others have fun, after all, it is maths! It is OK to make mistakes in the board and to hesitate to do things! Don't worry too much! Talk about something you enjoy and others might enjoy. This is not the defense of a thesis, but rather a friendly gathering of people who are willing to support each other and have fun with that.

8 (additional topic prompted by the advisory comitee) If you wish, you are more than invited to share your own original research. However, we aim to restrict this to, at most, twice a term, since we want to make sure everyone has a space to share their voice (and who does not love classics like Dirichlet's Theorem?). Therefore, don't be too frustrated if you have to wait until next term, instead you can give a talk this term in preparation for that! Moreover, you can also give a talk on your topic of research and state (at the end of your presentation) what your current problem of research is. When presenting your own research, remember that you still have to follow the tips above (this is not a postgraduate talk with people familiar to that area).

Best wishes,

the First Pedro (Pedro Lack)