MSc Seminar, 2019 Spring

kick-off

1. • Each student gives a talk about his/her MSc thesis project.

2. • Each talk takes 20 minutes.

3. • Please bring your laptops (non-speakers included!)

4. • After each talk, you’ll have 15 minutes to summarize the talk in 5-10 sentences in a google survey.

5. • You’ll have to do that in pairs.

6. • We need 2 volunteers for Feb 15 (preferably 2nd-year MSc students)

7. • If any of the dates are not suitable for you, please let me know now.

8. • I’ll make a randomized schedule later today.
Rules

1. Each student will present a 20-minute talk based on his/her MSc thesis topic.
2. The talk should be as comprehensible as possible to your fellow students.
3. Prepare slides in pdf.
4. You should give a practice talk on the Wednesday before your talk, or earlier. On Wednesdays, I'm available between 8:00-12:00 and between 14:00-16:00. Contact me the week before the talk to find a time for your practice talk, either in person, or via email at palyi at mail dot bme dot hu.
5. The practice talk should take 20 minutes, and it is followed by a discussion that takes at most 30 minutes.
6. In the seminar session, use your own computer for the talk, but also bring along the slides on a pendrive, just in case your computer does not work with the projector.
7. Test if the projector works with your computer before the session starts.
8. Be prepared to take questions.
9. Each talk is followed by 15-minute discussion, during which the audience has to write a summary of the talk in 5-10 sentences in a google survey. This is done in pairs. Please do bring your laptop even if you're not the speaker, to make sure that you can complete this task.
10. You should email me the final version of the slides right after your talk.
11. You can miss at most 3 classes.
12. The grade will be determined based on the quality of the presentation. Not giving a practice talk, or cancelling a talk, can result in a lower grade.
6. Talks

Every talk you give is a potential job talk -- your potential future colleague or boss may be in the audience, and in the distant future when hiring decisions are made, he or she may remember the excellent or terrible impression you made in the one talk he ever heard you give. Therefore: do all you can to give the absolutely best talk possible, every time -- your future may depend on it!

a) Your first slide should have enough material on it to be able to give a five(!)-minute introduction before changing to the second one. First slides which have only the title of the talk and the name of the speaker on them are, though regrettable common, annoying, because the audience typically gets to see them only for 10 seconds.

b) The introduction should, much like that of a paper, tell the audience why the field you work in is interesting, what are the big questions, why you find them exciting, what are the issues you have decided to study. Advertise your field, not just your own work. Don't rush here -- a good introduction is essential in persuading the audience to actually listen to you instead of letting their thoughts wander. Usually, one can tell within the first two minutes whether a talk will be really good or not.

c) Give the outline of what will come only after you gave the introduction (if you do it in the opposite order, quite often the audience will not be able to appreciate the outline.) Don't use more than four or five points in the outline -- more will be confusing, and will be forgotten.
d) Summarizing, the first slide should ideally contain:
(i) Title of talk, speaker name (preferably underlined), coauthors, collaborators
(ii) One or two beautiful figures serving as motivation, and one or two more that summarize your main results. These figures can be small -- they just serve as a table of contents at this point, you'll discuss them again in detail later.
(iii) A one-line sentence that summarizes the main question that you plan to address.
(iv) A brief outline of at most four or five points. (If you run out of place, you can put this on slide two, but it usually "sticks" better in your audience's minds if they can stare at it for 5 minutes while listening to slide one.)
(v) A one-line sentence that summarizes the main result.

e) Try to dedicate each subsequent slide to a single "key idea or concept", which should be mentioned in the title of the slide.

f) **Summarize the take-home message of each slide by a one-line sentence at the bottom, highlighted in an attention-grabbing way (e.g. red with yellow background).**

g) As a rule of thumb, **plan to talk at least 2 to 3 minutes per slide (even better, 3 to 5).** This gives the audience sufficient time to absorb what is on the slide. Figures that are just flashed for 10 seconds and disappear again are completely useless -- very few people are able to grasp the contents so quickly. Also remember that some people actually try to make notes while you talk -- they are really grateful if they have sufficient time to copy a key figure or equation, and really annoyed if they don't. Also, **rushing through a talk is generally counterproductive** -- the audience first gets nervous, then annoyed, and once you've lost them by rushing too much, they stop listening altogether.
g) Rule-of-thumbs (e) and (g) imply that you will sometimes have to combine two or three of your favorite figures onto one slide, plus a few words of explanation, an equation, a reference, and a take-home message. At the same time, you will have to judiciously fiddle with placing, spacing and sizes of all components to avoid the slide looking too "busy". (Building up the slide component by component in power point talks helps to ameliorate the latter problem.) Preparing such a slide takes much more time than putting each figure on a separate page. However, the benefit of being able to talk about a single concept in a coherent way, and give the audience enough time for this to sink in, outweights the extra time spent in preparing the slide. -- Only polished products sell well!

h) Every slide should have at least one figure (with very rare exceptions!). If you don't have a results-figure, at least make up an explanatory cartoon-figure that sheds light on the equations you are talking about.

i) No slide should have more than three equations (with very rare exceptions!). This rule-of-thumb encourages you to resist the urge of "deriving results" in front to the audience's eyes. Of course, presenting derivations is sometimes useful and meaningful, in particular for back-of-the-envelope-arguments. But usually, 99 % of the audience is lost within 10 seconds after you plunge into a detailed derivation, and the 1 % that is not would have asked you afterward if they were really interested in the details.

Remember, a talk is not a lecture: your job in a talk is to get across ideas, intuition (in the form of revealing cartoons) and results (in the form of easy-to-remember figures and plots), not detailed derivations!
j) Put the key references for each slide inconspicuously (i.e. very small type -- place is scarce!) but readably at the top or bottom. Make the reference complete enough that an interested reader will be able to track down the paper, e.g. "first author et al., PRL, 10, 193 (2000)" for the important references, or "first author (2000)" for the not-so-important ones. No harm is done in putting a reference to your own paper on several different slides. REMEMBER to also include references mentioning the work on which your's builds, or that of your competitors. Nothing upsets people more than not being cited properly.

It is not always necessary to actually mention the references while talking. But at least they should be visible, to keep those that do care about them happy.

k) The summary slide should, ideally, have mini-versions of the figures illustrating your main results. This helps to reinforce the "take-home" pictures that the audience should try to remember.

l) The summary slide should contain a comment or two about open questions, future prospects, etc. (This will help the chairman to ask at least one meaningful question in case the audience has none!)

m) If you give a power point talk, resist the urge to be cute by using too many silly animation features. Formulas and figures that swing or swirl in from left to right, or fade away, or blink before settling down, are terribly distracting. Keep it simple: when a new component of a figure is to appear, let it simply pop up at the right place without further fuss.

o) Stick to one color scheme throughout the talk: Color 1 for titles of slides, color 2 for references, color three for formulas and explanations, color four for main results, etc. Similarly, choose a certain size lettering for each type of item, and use it consistently throughout.
p) If you are not a very experienced speaker, type up word for word what you plan to say for the first few minutes in the introduction, and memorize this. Usually, the words you will actually end up saying will be different; nevertheless, the process of formulating an introduction word for word will force you to organize your thoughts properly and will help you avoid getting tangled up right at the beginning. By the time you have finished the typed-up part, your nerves will usually have calmed down quite considerably. — Formulating passages word for word while preparing may also be helpful for other delicate moments of the talk, e.g. when you have to explain politely why your competitor is wrong, or why experiment so and so is inconclusive, etc.

q) **Schedule a practice talk** with your friends and collaborators at least one week before the actual talk. Usually, you will start preparing the talk too late to have it in perfect shape by the time the first deadline arrives, and you will be grateful for the extra week until the actual talk.

r) If it is an important talk (invited talk at major conference, job talk), schedule a second practice talk, and even a third one, if you are a nervous type of person. After all, *your future may depend on it!*