

## GUIDELINES FOR MATHEMATICS SEMINAR TALKS

### 1. BASIC CRITERIA

- (1) **The target audience for your talk should be the other students enrolled in the seminar.** You should assume that the audience is already familiar with the main concepts from the standard courses in the mathematics major. It is fine to direct a few comments to non-mathematicians, but do *not* design your talk to appeal to a broader audience.
- (2) **Be sure to pick a topic that has sufficient mathematical depth.** The material you are presenting should be engaging from a mathematical point of view, not just because of its practical applications or its historical significance. Your topic should not be something that is extensively covered in one of the department's standard courses (even one you yourself have not taken).
- (3) **Do not give a survey talk or select a topic that is overly broad.** For example, rather than talking about “mathematics and art” in general, you should focus on a specific topic within that area. Remember that you will be presenting an hour-long talk, not an entire course. It is better to say a lot about a little than a little about a lot.
- (4) **You need to prove something.** While it is fine – and often necessary – to cite results you do not have time to prove, your talk must include at least one complete proof of a substantial result. For this reason, it is generally wise to avoid speaking about a “big result” (e.g. Fermat's Last Theorem) that cannot feasibly be proved in an hour.
- (5) **To the best of your ability, try to avoid topics that have been used frequently in the past.** While different students enroll in the seminar each semester, there are members of the audience who attend year after year. The topics presented in the seminar should, as much as possible, reflect the breadth and diversity of the discipline.

## 2. PROCEDURES FOR THE COURSE

- (1) **MAT 495 is restricted to instructor permission.** You will not be able to register for the course online, but will need to have a registration form signed by your faculty advisor and by the instructor of the seminar.
- (2) **In order to register for MAT 495, the topic for your talk must be approved beforehand by the department.** Before the end of the semester *prior* to taking the seminar, you must submit a written prospectus of your topic to the seminar instructor. This prospectus should include a brief description of the topic, along with a provisional list of references and the name of the faculty member with whom you intend to work. The department will provide feedback on the suitability of the topic and, if necessary, request a revised proposal.
- (3) **You are expected to attend every meeting of the seminar.** If you miss more than two talks, your semester grade will be lowered one notch (e.g. from A- to B+) for each additional unexcused absence.
- (4) **About halfway through the semester, every student enrolled in the seminar will give a brief (approximately ten minute) mini-talk.** The purpose of this exercise is to let students practice speaking about their topics in public and to give the department another opportunity to provide comments and feedback.
- (5) **The majority of your semester grade will be based on your main (hour-long) talk.** Your talk will be evaluated based on the criteria described in Section 1, as well as the overall quality of your presentation. The following factors will play a large part in determining your grade:
  - Your demonstrated understanding of the material.
  - The clarity of your exposition.
  - The technical correctness of the definitions and proofs you present.
  - The overall organization and structure of your talk.
  - Your ability to engage the target audience and to present your topic in an appealing and original manner.

## 3. PREPARING YOUR TALK

- (1) **Meet frequently with the faculty member advising your talk.** You should get this faculty member's input while you are in the process of choosing your topic, as you are doing research, and when you are preparing your talk. While the quality of the talk is ultimately your responsibility, the faculty member can offer valuable insights and suggestions – if given the opportunity to do so.
- (2) **Consider using the talks from the first half of the semester as a model.** While there are occasional counterexamples, the seminars given by “professional mathematicians” usually provide a reliable template for preparing an hour-long mathematics talk.
- (3) **Choose suitable references.** Not every mathematics textbook or journal is accessible to a student at your level or appropriate for this type of talk. The following journals, all of which are readily available on campus, contain many articles that could be useful:
  - *The American Mathematical Monthly*
  - *The College Mathematics Journal*
  - *Math Horizons*
  - *Mathematics Magazine*
  - *Notices of the American Mathematical Society*Ask the faculty member supervising your talk if you have any questions or concerns about a particular reference.
- (4) **Think carefully about what to include in your talk and what to exclude.** You only have about an hour to give your talk, which is usually not enough time to communicate everything you have learned about a particular topic. When choosing specific items to include, think about what information would be most meaningful to your audience.
- (5) **Use appropriate visual aids.** While it is possible to give an hour-long talk using only a blackboard, it is generally advisable to prepare slides. Make sure not to overwhelm the audience with too many details. Think carefully about what you plan to say and what you need to write down.

Avoid silly pictures or visual effects, as they tend to distract from the substance of your talk.

- (6) **Practice your talk beforehand.** Many students find it helpful to perform a “dry run” or “dress rehearsal” in front of a live audience. In any event, you should go through your talk at least once out loud – even if it is to an empty room.
- (7) **If possible, prepare a short optional section.** Despite careful preparation, it is sometimes difficult to judge how long it will take to deliver a talk. Having some material that you can either include or exclude gives you a bit more flexibility if you need to lengthen or shorten your talk.
- (8) **About a week before you are scheduled to speak, please submit a title and abstract to the faculty member advising your talk.** The abstract should be a brief, thoughtfully written paragraph that communicates the essential elements of your talk to a general audience. Feel free also to include a suitable picture. The department reserves the right to edit your abstract for stylistic or mathematical correctness and may, if necessary, ask you to rewrite it.