

SEMINAR IN NUMBER THEORY: PRESENTATION RUBRIC
MIT 18.784, SPRING 2025

Each presentation will be graded on the following components: mathematical rigor, clarity, audience engagement, and process. Within each category, descriptions of each grade level out of 5 are provided here to serve as guides. Some factors affecting the final grade may not be included in the descriptions here.

Mathematical rigor (30% for the first round, 40% after the first round).

- 5 The mathematics presented is correct and rigorous. The presentation demonstrate a thorough understanding of the material. The terminology and notation used is correct and internally consistent. Any errors are minor, quickly caught, and quickly corrected (self-identified errors may still reduce the clarity grade). Theorems, attributions, and proofs are given precisely and appropriately. Any gaps in logic are appropriate to the target audience, and the presentation makes clear that the presenter could correctly fill in all gaps if asked.
- 4 The mathematics presented is mostly correct and rigorous. The presentation demonstrate a solid understanding of the material, but there were some errors, inconsistencies, or omissions that detracted from the rigor or correctness of the presentation (e.g. minor factual inaccuracies, oversimplifications, sketchy proofs). Most gaps in logic are appropriate to the target audience, and the presentation makes clear that the presenter could correctly fill in all gaps if asked.
- 3 The mathematics presented is somewhat correct and rigorous. The presentation demonstrate a good understanding of the material, but there were major errors, inconsistencies, or omissions that detracted from the rigor or correctness of the presentation (e.g. mistated main results, missing steps in proofs). There are a few gaps in logic that may appear difficult for the presenter or audience to fill in.
- 2 The mathematics presented is somewhat correct and rigorous. The presentation demonstrate some understanding of the material, but there were critical errors or inconsistencies that detracted from the rigor or correctness of the presentation. There are gaps in logic that may appear difficult for the presenter or audience to fill in.

Clarity (40%).

- 5 The entire presentation can be understood on some level by all classmates. For example, the level of detail, difficulty, and formality are appropriate to the audience and to the content; the well chosen topic, structure, examples, figures, explanations, and use of formality guide most of the audience to understand both the content and its relevance. Carefully structured board work and/or slides complement vocal delivery by emphasizing important

- points and helping the audience absorb subtle points, without distracting. Delivery is carefully prepared and the language is appropriately precise.
- 4 Almost all classmates can follow the main points most of the time: awkwardnesses of delivery, visuals, or development may be distracting or cause confusion for short periods of time, but do not interfere substantially with audience understanding of the presentation as a whole. Or the presentation exhibits the characteristics of a 5, but a single flaw (e.g., speed) interferes substantially with audience understanding.
 - 3 Many classmates follow part of the presentation, but issues with delivery, visuals, or development interfere substantially with audience understanding of the presentation as a whole.
 - 2 Those who already understand the material are able to discern what was intended, but serious problems with delivery, visuals, or development prevent understanding by most of the target audience.

Audience engagement (20%).

- 5 The presentation is interesting to the target audience. The material is motivated and delivered in an engaging manner. The speaker effectively used varied emphasis, visuals, and delivery to keep the attention of the audience in a natural manner. The presenter adapts well to audience reactions. It is easy for the audience to pay attention; there were almost no moments of awkwardness, indecision, or distraction for the audience. The presentation is carefully crafted to be motivated and mathematically engaging for the audience. The presentation finished on-time.
- 4 Most of the presentation is interesting to the target audience. Most of the material is motivated and delivered in an engaging manner. The speaker effectively used varied emphasis, visuals, and delivery to keep the attention of the audience in a mostly natural manner. It is easy for self-motivated audience members to pay attention; there were a few moments of awkwardness, indecision, or distraction for the audience. The presentation is crafted to be motivated and mathematically engaging for the audience. The presentation finished on-time or slightly early/late (by a few minutes).
- 3 Parts of the presentation are interesting to the target audience, but major sections had issues that substantially interfere with the audience's ability to pay attention (e.g. overly detailed or lacking relevance). Some of the material is motivated and delivered in an engaging manner. It is easy for self-motivated audience members to pay attention in some sections, but there are multiple moments of awkwardness, indecision, or distraction for the audience. There is some effort to make the presentation engaging to the audience.
- 2 The presentation has issues keeping the interest of the target audience. There are major issues interfering with the audience's ability to pay attention (e.g. overly detailed, lacking relevance, substantial clarity issues). It is difficult for most audience members to pay attention.

Preparation process (10% for the first round).

- 5 The practice presentation was carefully crafted (e.g., with an earlier practice) and represented the best capabilities of the presenter; the presenter ensured that he or she understood the provided feedback and the reasons

for it, and the revision successfully took into account but was not limited to the provided feedback.

- 4 The practice presentation was carefully planned and the revision successfully incorporated important feedback.
- 3 The practice presentation was planned but contained substantial flaws obvious to the presenter (e.g. feedback largely repeated the presenter's own observations so feedback would not help the presenter to improve beyond his or her own initial capabilities) or important feedback was ignored.
- 2 The practice presentation demonstrated little preparation, contained critical flaws, or most feedback was ignored.