

Portfolio instructions

A portfolio is a carefully curated collection of work that tells a story. Your portfolio will tell the story of you as a mathematician and student of geometry from the first day of class to the last. Your goal is to convincingly argue that, by the end of the semester, you have met the criteria for a certain grade.

Grades: Your portfolio is, ultimately, your chance to show how you've met the criteria for a certain grade. Everything you include, and everything you write, should be aimed at that goal. I will read your artifacts and reflections carefully. If you make a convincing case, you'll earn the grade that you are aiming for!

Due date: Your portfolio is due at the **end of the final exam period (Tuesday April 25, 2023, at 6 pm Eastern)**, uploaded to Blackboard.

Format: Include everything listed below in *one file* that you upload to Blackboard. You may use this [Portfolio template](#) or make your own file.

What do I include in the portfolio? Include these items in this order, all in one file. Details for each item are below the list.

- Table of contents. List all items in the portfolio in the order they are included. Include the number and name of each proof, or a title for any other items (e.g. "Presentation of Theorem 54 on 11/17").
- Brief essay #1: Being a good class citizen.
- Brief essay #2: Understanding of key geometric ideas.
- Brief essay #3: Actively sharing ideas (for a B).
- Brief essay #4: Growth in a new direction (for an A).
- Final grade reflection.
- 5-7 artifacts that you're proud of, with brief explanations.

Revisions: You can revise any proofs or other artifacts another time before including them in the portfolio. Your goal is to show how you've met the criteria for each grade *by the end of the semester*. If something confused you early on, but you've figured it out now -- show me!

Brief essays: Include a short essay on each of these topics at the beginning of your portfolio. These help step you through some of the key criteria for each grade. If you don't intend to argue for that grade or higher, you can leave the essay out. Label each essay clearly by name and number and put each on a separate page.

1. **Being a good class citizen (for a C or higher).** *1 or 2 paragraphs.* Describe how you've been a good class citizen. Be sure to clearly address the [criteria in the syllabus](#). Refer to specific examples that illustrate your claims.
2. **Understanding of key geometric ideas (for a C or higher).** *As many paragraphs as needed, see details below.* Explain how you have shown deep understanding of these topics. Write one *brief* paragraph for each item. Refer to specific examples that illustrate each of your claims – artifacts included in the portfolio are preferred, but you can also refer to other things not included here. For a C, address *many* of these topics (at least 3);

for a B address *most* topics (missing at most 1); for an A address *all* of them.

- Isometries
 - Perpendiculars and Right angles
 - Parallels and Axiom 5 - *To address this, identify a specific theorem or problem that relies on Axiom 5, and explain why it requires Axiom 5. Be specific! Also **include a picture of a counterexample** showing how the theorem would be false in either Hyperbolic or Spherical geometry. Explain how you know the picture shows that the theorem has true hypotheses but false conclusions.*
 - Triangle congruences
 - Area and/or Angles
 - The overall meaning, use, and importance of definitions and axioms - *To address this, explain briefly what axioms and definitions are, why they are needed, and where they come from. Also refer to work that illustrates your use of them.*
3. **Actively sharing ideas (for a B or higher).** *1 or 2 paragraphs.* Describe how you've actively shared your ideas with the class. Be sure to clearly address the [criteria for this from the syllabus](#). Refer to specific examples that illustrate your claims.
4. **Growth as a mathematician (for an A).** *2 or 3 paragraphs.* Describe how you've shown significant growth in the new direction you've identified for this semester. Clearly address the [criteria for this from the syllabus](#). Don't just tell me *what* you learned -- focus on one or two important and specific ways that you have changed or grown over the course of this semester, above where you started. **Include an artifact in your portfolio that illustrates your growth area.** In this essay, briefly explain how this artifact shows growth in the way you've described.

Final grade reflection: This component is a self-evaluation of your performance in this course. Your goal is to convincingly argue that you have met the criteria for a certain grade. Be thoughtful, reflective, yet concise: 1-2 pages total. Be honest! Answer these questions in this order:

1. **What grade did you earn?** State it clearly.
2. **How did you meet that grade's requirements?** Find your grade's description on the ["How do I earn a grade?" page in the Syllabus](#). You should have already explained how you've met most of these criteria in the essays above. In this part, you have the opportunity to add anything about the grade criteria that you haven't already explained in the essays. Be brief and focused.

+/- grades: You *may* argue in favor of adding a + or - to your grade if you wish. A "+" should generally represent going above the grade requirements, but not achieving the next higher grade. A "-" means that you have met requirements, but in a way that you feel is at a bare minimum. You can also make an argument for earning a "+" or "-" for a different reason. In any case, make your best case!

3. **What's missing?** Are there other important criteria that should be used to determine your grade, or should any of the criteria in the syllabus be edited or clarified? If so, explain briefly why they are useful criteria, and how well you met them. Again, be specific,

thorough, and refer to specific artifacts or examples showing how you met them.

4. Speed round: Answer each of these questions with *one sentence*, including a brief explanation.

- a. Finish the sentence with another student's name: "I especially appreciated _____, because..." As always, I'm interested in your reasoning.
- b. What was the most difficult part of the class for you? You can list a general topic, a specific proof, a type of work we did, etc. Tell me why!
- c. What was the easiest part of the class for you? Tell me why!
- d. What part of class surprised or interested you the most? Why? One sentence!

Artifacts that you're proud of. The remainder of your portfolio should be specific artifacts. Carefully select **5 to 7 artifacts** from class that you're especially proud of and directly insert the full artifact into your portfolio. "Artifacts" can include homework problems or class journals, but can include other items too. For example: Did you have great work on a daily prep, but didn't present or write it up? Share your notes! Similar for presentations. In the end, anything that you did for this class, and that you're proud of, fits here. **After each item, include one paragraph that explains why you included this item and why you're proud of it.** *Please keep these focused and be selective.*