

MA110 – Mathematical Explorations – Spring 2012
Geometry in the World Around Us Poster Assignment

What is a poster? Poster Sessions are used to publicize, announce, and/or present the results of research investigations. They are widely used in professional conferences (including virtually all conferences for mathematicians and scientists), college and university courses, and meetings of all kinds. They are useful because many posters can be displayed without the time and space limitations that traditional presentations impose. Additionally, it makes it easier for participants to browse and find research of interest.

What are our posters about? We will be studying geometry for much of this course. The great German astronomer Johannes Kepler, a key player in the Scientific Revolution, said:

Where there is matter there is geometry.

Throughout the course I will share interesting examples of geometry in the world around us. But, as Kepler suggests, geometry is so pervasive in the world around us that my examples will only cover a small sampling. Your posters are designed to help us recognize geometry in greater diversity. In some sense, if we collected your posters together they would serve as a supplemental text for our course – a small encyclopedia of geometry in the world around us.

For your poster you are to choose one particular place that geometry plays a role in the world around us. You should choose a subject that you are interested in. For subject you must:

- ∞ Describe the specific appearance of geometry that is your subject in detail, using a variety of different representations (images, equations, diagrams) as appropriate.
- ∞ You must describe, precisely, what the fundamental geometric attributes that makes your subject worthy of study are.
- ∞ You must describe why this appearance of geometry is of interest to you and may be of interest to others.
- ∞ You must describe the importance of this appearance of geometry – why it appears, what it signifies, how it evolves, etc.
- ∞ You must describe how this appearance of geometry can be analyzed, represented, applied, adapted, and/or related to other areas. You are free to choose topics whose mathematical analyses are much more sophisticated than you and I can currently understand – this is a survey poster. Indeed, I would encourage you to choose a topic vivaciously – the more interesting the better.
- ∞ You must give several references where the interested reader can find more information about this appearance of geometry. This should include not only print and Internet references, but also interactive online programs, methods and/or tools for investigating the underlying geometry physically, places (including places in nature, museums, etc.) where this geometry can be observed, etc.
- ∞ A history of the discovery and/or analysis of this appearance of geometry in the world around us.

Purpose of the posters. In the contemporary United States geometry is an almost universally hated subject. We will consider some of the reasons for this in this course and the book [A Mathematician's Lament](#) will contribute to our discussions. Whatever the reasons, this is a very troubling state of affairs because geometry is, as Kepler reminds us, involved in essentially every aspect of the world around us. And each of us really uses geometry at just about every moment throughout each of our days. With these posters my hope is that we can return geometry to a more positive position in your worldview.

Poster presentations. All posters will be hung in the 4th floor hallways of Wilson Hall. All posters are due on Wednesday and will be displayed at least until Friday afternoon. You must either meet with me or make arrangements so your poster is displayed appropriately prior to the beginning of class.

The posters will be hung from two screws that are exactly two feet apart using clips that I will provide for your posters. All posters must include the author's name on the front.

Poster Subject. Your topic must be original. I have information on posters completed in previous semesters. Resubmitting somebody else's work as your own is a violation of college policies on academic honesty and will be dealt with severely. Moreover, I want a diversity of subjects. No more than a single posters on a given topic area will be accepted.

Damage disclaimer. Because of the public nature of the display of the posters, they are vulnerable to vandalism. Students who are not willing to take the small risk that the suggested means of display of their posters entail must contact me well in advance about alternative arrangements.

Requirements. The due date for your poster will be announced early in the course.

- Two weeks prior to the due date you must submit, in writing, a brief proposal which identifies the subject of your poster. You should keep a copy of your proposal.
- Prior to submitting this proposal you must check to insure that nobody else has the same topic. A sign-up list will be posted on the blackboard between the offices of Prof. Fleron. This list will be posted on Wednesday, 8 February at 8:00 a.m.
- You cannot do a topic that we have or will be covering in detail in this course. If you have questions, please be sure to ask.
- One week prior to the due date you must submit, in writing, a more detailed proposal about your project. It should contain several references, layout and content ideas.
- Your poster must include a list of references either on the front or the back. These references must be diverse, they cannot simply be a few obscure Internet sites. Internet sites should be reputable and you must include several references beyond the Internet.
- Normal rules regarding appropriate referencing and citation must be followed. I.e. every passage you use that you have not written must be quoted and appropriately cited.
- Your poster must be original. You cannot simply cut and paste passages from reference materials and glue them to posterboard.
- You must assess the posters of at least ten other students and these assessment reports must be submitted with your final report.
- Your final self-assessment report must include a tabulation of the scores you received and must conclude with a suggested letter grade (on the standard A+ - F scale) for your poster.

Assessment criteria. Assessment, on a scale of 1 - 5, will be used to reflect how well each poster achieved each of the following:

- ∞ An interesting, engaging, and/or important choice of geometric topic which adds vitality and breadth to our Encyclopedia of Geometry.
- ∞ An informative and accessible description of this appearance of geometry, discussion where the topic arises, description of the importance of this topic, why this topic is of interest to you and others, the topic's impact, applications of this topic, and the discovery and/or analysis of this appearance of geometry.
- ∞ An accessible survey of the mathematical analysis of this appearance of geometry, including as many of its representations as appropriate. This is the more mathematical portion of your poster.
- ∞ An appropriate collection of additional information interested readers can use to pursue the topic in greater depth. These may include: book, journal, audio, video, and other media and multi-media citations; Internet resources; reviews; museum holdings; event dates; etc.
- ∞ A physical construction of a high quality poster, including: appropriate design, pleasing visual layout, effectiveness, appropriate mix of media and information, effort, etc.

Assessment. Using the criteria above, your poster will be assessed by peers in your class, by Prof. Fleron, and by yourself.

Peer Assessment – Each student is required to assess the posters of at least ten other students during the course of the semester. For each poster that you assess you must completely fill out an assessment form, including written comments. One copy of this assessment form is to be submitted to the author. Duplicate copies are to be kept by the assessor until the end of the semester when they will be turned in to Prof. Fleron. Peer reviews will be blind – the author of the poster will not know the identity of the reviewers.

Self Assessment – After your poster has been removed from the presentation you are to read all of the assessment forms and comments that have been submitted. You must tabulate all of the scores submitted on all of the assessment forms. Based on this feedback and your own evaluation of your work, you are then to write a brief one- to two-page report which critiques your poster, suggests a final grade for your poster (on the standard A+ - F scale), and provides rationale for your grade determination.

Assessment by Prof. Fleron – Based on peer feedback and your report, Prof. Fleron will assign a final grade for your poster. This grade will be included on your report when it is returned to you. Peer assessment will not work unless everybody participates. Students who do not assess at least ten other posters and turn the corresponding assessment reports in to Prof. Fleron will receive a failing grade on their poster.

References and resources. There are many places to find information about posters in general. Some are listed below. In terms of topics, I am not aware of broad, accessible resources – that is one of the reasons we are doing the posters. I will continue to bring ideas and possible resources into class. As you find others, bring them into class and we will share them.

Information on Posters

For more information on posters, the following Internet sites may be useful:

http://www.kumc.edu/SAH/OTEd/jradel/Poster_Presentations/PstrStart.html

<http://www.awm-math.org/workshops/posters.html>

Poster Checklist

- I know the due date of my poster.
- I checked that nobody else has chosen the same topic that I have.
- I handed in my poster proposal two weeks prior to the due date.
- I handed in a more detailed proposal one week prior to the due date.
- My name is on my poster.
- I put a comment envelope on my poster.
- There is a bibliography of references I used on the front or back of my poster.
- I found Prof. Fleron on the due-date and helped him hang up my poster.
- I reviewed at least ten other posters from our class.
- I submitted a poster report that included
 - Average scores in each of the five categories in my report.
 - A discussion of the feedback that I received on my poster.
 - A discussion of the grade that I believe I should receive on my poster.
 - A clear statement of the letter grade (A+ - F) that I should receive on my poster.
 - Both the 10 poster evaluations forms that I filled out and the 10 that were filled out by my peers for my poster.