

Typically reading assignments expect only a superficial understanding of the material. They are intended to give you a first look at material we'll explore in more depth in class. Occasionally, however, you will be asked to thoroughly understand something from the reading which we will not go through in class.

Most of the readings are from Bonahon, some are from Schwartz and sometimes you are asked to read online materials. Answer the following questions and turn in on the due date. The questions are intended to help you focus on what you are expected to get out of the reading and to ensure you are prepared for class. Your answers need not be long, but they should be thoughtful.

(1) Schwartz Chapter 9.1 - 9.3

- (a) What is the difference between the chordal metric and the round metric on S^2 ?
- (b) What are examples of isometries of S^2 with the round metric?
- (c) What is the definition of a geodesic on S^2 ? What are the geodesics?
- (d) How can you determine the area of a geodesic triangle on S^2 just by knowing its angles?

(2) Bonahon Chapter 3

- (a) Does Bonahon give any additional information concerning S^2 than Schwartz?
- (b) Whose presentation of the geometry of S^2 do you prefer?

(3) Steven Strogatz's blog post on spherical geometry "Think Globally":

http://opinionator.blogs.nytimes.com/2010/03/21/think-globally/?_php=true&_type=blogs&_r=0

(The purpose of this blog reading is twofold: First, you get to read an example of a well-written blog essay on a geometric topic – should be helpful for when you have to write your own! Second, you get to learn some interesting facts about geodesics, a central concept of this course. The questions below are intended to have you explicitly consider the qualities of good mathematical writing.)

- (a) Share some of the interesting things you learned from the essay.
- (b) What questions does the essay provoke? What would you be interested in pursuing further?
- (c) Who is the intended audience of the essay? What qualities of the writing make the author successful or unsuccessful at reaching that audience.
- (d) Choose two other possible audiences for a blog post on the same topic as the essay you read. Say what those audiences are and, for each, how the essay might be structured differently in tone and content if it were written for that audience.