

## STUDYGUIDE FOR THE FIRST 403 MIDTERM

We will have covered Chapter 1 up to the Theorem of Menelaus. We skipped the parts about complex polynomials, you don't need to know them. Here is a list of topics that were covered in the class and skills that you should have:

- Given two distinct points  $A$  and  $B$ , you should be able to give the equation of the line through  $A$  and  $B$ . Given two lines, you should be able to find their intersection if it exists.
- The definition of parallels and parallelograms and their basic properties (parallelogram  $\iff$  diagonals bisect each other)
- Know the definition and geometric meaning of midpoints and centroids of a set of points with or without masses; ratios.
- We proved that the medians of a triangle are concurrent and an equivalent theorem for triangles with masses attached to the three points (Theorem 1.10).
- Barycentric coordinates.
- Theorem of Ceva
- Statements of Theorems 1.14 and 1.15 (Theorem of Menelaus)

You don't need to be able to reproduce the proofs of theorems we discussed in class but you should be able to use the theorems. You should also be able to do some small proofs (on the level of the exercises from the book).