

# Topics in modern geometry, part 1

## Introductory information

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The purpose of this sheet is to cover some administrative and logistical information concerning the topics in modern geometry course, particularly the first half.

The course will be six weeks long. The first half of the course will be lectured by me (Benjamin Barrett), and Rhiannon Dougall will take the reins for the second half. The two halves will cover different topics related to Möbius maps, the hyperbolic plane and the group  $\mathrm{SL}_2(\mathbb{R})$ , so there will be significant overlap between the two sections, and the first will cover introductory material vital for the second. The Maths Café sessions (starting in Week 2) will be taken by Harry Petyt.

## 1 Problems and assessment

Credit for the course is based on assessed problem sheets and a final exam. There will be five problem sheets in total.

The first four will contain a mix of assessed and unassessed questions; each of these sheets will contribute 2.5% to the final mark. These sheets will be distributed on the Mondays of weeks 2, 3, 5 and 6, and your answers will be due by midday exactly one week later, i.e. on the Mondays of weeks 3, 4, 6 and 7. Work on these sheets may be submitted up to 24 hours late, but late work incurs a 10% penalty.

The fifth sheet is entirely assessed, and is worth 10%. This sheet will be distributed at the end of the course, and answers will be collected a few weeks later.

The remaining 80% of the final mark will be based on the exam in January.

## 2 Times and places

Lectures will take place at 10am on Mondays, 12pm on Wednesdays and 11am on Fridays, in Fry Building G.13, Maths Building SM4 and Fry Building G.09 respectively.

Maths Café will take place at 4pm on Thursday in Fry Building LG.13 from week 2 onwards.

The office hour will be on either Thursday or Friday. The time will be finalised in the first lecture.

The Friday lectures of weeks 2, 3, 5 and 6 are provisionally scheduled to be problems classes.

Note that, between office hours, Maths Café and problems classes, there are several avenues through which you can get help with this course, and these are concentrated towards the end of weeks 2, 3, 5 and 6. This is intentional: the problem sheets will be distributed at the beginnings of those weeks, in the hope that by Thursday/Friday you will have an idea of what you understand and where you need help. Please do make use of these opportunities! I can also be reached by email most of the time, although probably not over the weekend, so if you don't understand something on the problem sheet, don't leave asking for help until the last minute.

### **3 Notes**

Typed lecture notes will be provided on Blackboard and (at least in the first half) on my webpage. Initially I'll upload the first week or so, and then add to this as the course progresses.

### **4 Final thoughts**

I hope you enjoy the course. Hyperbolic geometry is a beautiful subject that touches on most major areas of modern mathematics.

If you do find parts of the course particularly difficult then I hope you will tell me about it. I am always happy to receive feedback on how my lectures can be improved, and this feedback will be most effective if given early. And do try to make as much use as possible of the Maths Café and my office hour!