INFORMATION CONCERNING THE EXAM IN MAT4230 (ALGEBRAIC GEOMETRY III)

Here is some information on how the oral exam in MAT4230 (Algebraic Geometry III) will proceed, and what you should prepare.

• The exam takes place on Thursday December 6, in room B63, Nils Henrik Abels hus. Each candidate will be called in separately, and will be examined for approximately 30-45 minutes.

• First the candidate makes a short presentation (appr. 15 minutes) about one out of four central topics from the course. Details concerning the topics are given below. When the candidate is called in, he/she draws randomly a note which determines which topic to talk about (so you should have prepared a presentation of each topic). After that, the examinator will ask questions related to the topic, and possibly also questions from other parts of the course.

• The four topics are as follows:

(1) The group law on an elliptic curve.
(2) The group $E[m]$ of m-torsion points on an elliptic curve E.
(3) The endomorphism ring $\text{End}(E)$ of an elliptic curve E.
(4) The zeta function $Z(E/\mathbb{F}_q;T)$ of an elliptic curve E defined over a finite field $\mathbb{F}_q$.

• In your presentation of each topic, you should explain the ingredients and make the necessary definitions. You should explain what you consider the most important result(s) in this topic, and sketch how it is proved. You may in addition discuss examples illustrating the general theory.

• You are allowed to make notes before the exam, and bring with you *in total* 2 A4-pages that you may freely use during the presentation. No other help is allowed.

• If you have any questions concerning the exam, please feel free to ask me any time. Good luck!