

# MATH 277 FINAL EXAM STUDY GUIDE

M. MALLIARIS

The final exam will take place Thursday, December 9th, 10:30-12:30 in SS 108.

**Structure.** The exam will have four questions and a nontrivial extra credit problem.

Two questions will be fixed. For the remaining questions, choose two out of four.

**Key topics.** First-order logic, models, definability,  $\equiv$ ,  $\cong$ ,  $\vdash$ ,  $\models$ , automorphisms, isomorphisms, completeness, compactness, upward and downward Löwenheim-Skolem, types (as discussed in HWs 6-8), complete theory, elementary class. Know the statements of the main theorems and be able to outline their proofs.

**Secondary topics.** Sentential logic, derivations, ultrafilters and ultrapowers, counting types.

**Recommended studying.** Class notes and homework. The focus of the exam will be material from the second half of the class (i.e. first order logic). At least one question will be from HWs 6-8.

You may find some of the exercises in Enderton sections 2.1-2.2 and 2.5-2.6 helpful as a review of first order logic.