

# Algebra 2010-Aalborg University

**17th Lecture:** Thursday November 18th, 12:30-16:15 at room G5-109.

- 12:30-13:00 Repetition from last lecture. Unique factorization: Irreducible elements and prime elements. Unique factorization domain (pages 126–130).
- 13:00-15:00 Work in groups. Exercises from [Lau], 3.6 (page 138) + 2 exercises: A, B, 8 (i and ii), 9, 10, 26, 24 + some exercises from previous lectures that you did not solve yet.

Exercise A: Let  $R$  be an integral domain. Prove that for  $a, b \in R$ :  $ab \in R^*$  if and only if  $a, b \in R^*$ .

Exercise B: Let  $R$  be a ring. Prove that  $R$  is a field if and only if  $\langle 0 \rangle$  is a maximal ideal.

- 15:00-16:15 Lecture: Euclidean Domains. Polynomial rings. Degree of a polynomial. (pages 130–133, 143–145 and 147–148).

Best regards,

Diego Ruano