Modern Algebra
MATH 325W – Spring 2015

Monday:	Chapter 10: Algebraic Elements	
Wednesday:	Chapter 10: Algebraic Elements	**Week 8**
Friday:	Chapter 11: Eisenstein	

Homework

Homework #13 **due Tuesday, March 10**

Ch. 10: # 14, 20, 39, 42

Note: important information for #39 and #42 can be found right above #37.

Extra #1: Let $p(x) = x^3 - x + 1 \in \mathbb{Z}_3[x]$, and let r be a root of $p(x)$.

(1) Prove that $p(x)$ is irreducible over $\mathbb{Z}_3$.

(2) Use Theorem 10.8 to describe $\mathbb{Z}_3(r)$.

(3) How many elements are in the field $\mathbb{Z}_3(r)$?

Homework #14 **due Friday, March 13**

Ch. 11: #5–10, 14

Writing Assignments

On writing assignments, part of your grade will reflect the quality of your ***style***. Style includes everything from the basic mechanics of writing (complete, grammatically correct sentences with capitalization and proper punctuation) to the conventions of writing mathematics developed in Linear Algebra.

Writing Assignment #7 **due Wednesday, March 11**

Ch. 9: #25

Hint: modify the proof of 9.10. Let $I \subseteq \mathbb{Z}$ be an ideal. If $I = \{0\}$, then I is principal since in this case $I = (0)$. Now assume $I \neq \{0\}$. Let $S = \{a | a \in I \text{ and } a > 0\}$. Then the WOP applies to S (you explain why!), so S has a minimal element d. Then...

Also: Turn in a rewrite for one previous Writing Assignment (if you want). Make it beautiful!