Math 5370 **ALGEBRAIC STRUCTURES** Fall 2016
Dr. Duval **Homework**
Thursday, November 10

Written homework. Due in writing, at the beginning of class,

Thursday, November 17. 6.2, 6.7, 6.10, 6.19, 6.21, 6.24.

Warmup exercises. To present in class.

Tuesday, November 15. 6.13(ii) (just find the gcd).

Thursday, November 17. 6.25.

Reading assignment. These reading questions cover parts of the remainder of Chapter 6. On Tuesday, we should be discussing subsection at the end of Section 6.1, on unique factorization, and on Thursday we will discuss the subsection at the beginning of Section 6.2, on irreducibility.

1. The "How to Think About It" box at the bottom of p. 246 gives an outline of the beginning of how the ideas of arithmetic of integers are extended to the ideas of arithmetic of polynomials. Finish the outline (going to Fundamental Theorem of Arithmetic and Euclidean Algorithms), and identify where in the textbook each of these steps are located, for both integers and polynomials.
2. Construct a good example of Theorem 6.52.
3. Right after Proposition 6.55, the textbook claims that $\overline{x^2+1}$ is irreducible in $\mathbb{Z}_3[x]$. Verify this.
4. Fill in the details of Example 6.57.