Reading assignments

- by Thursday 4 February: §2.3, 2.4, 2.5 in [Eis95]
- by Tuesday 9 February: §3.1, 3.2, 3.3, 3.8 in [Eis95]
- by Thursday 11 February: the rest of Chapter 3 in [Eis95]
- by Tuesday 16 February: §4.1, 4.2, 4.3, 4.4 in [Eis95]

Exercises

An exercise whose label is of the form C.n refers to the n^{th} exercise in [Eis95, Chapter C].

2.4 (a)
(b)
(c)

2.11

2.13

2.17 (a)
(b)
(c)
(d)

2.19 (a)
(b)

2.21 (a)
(b)

3.3

3.5 (a)
(b)
Additional exercises.

1. Every irreducible monomial ideal is of the form $m^b = \langle x_i^{b_i} \mid b_i \geq 1 \rangle$ for some vector $b \in \mathbb{N}^n$, and these ideals are partially ordered by inclusion (see Exercise 3.6).

(a) Given a monomial ideal $I$, show that there are only finitely many irreducible monomial ideals that are minimal among those containing $I$.

(b) Prove that the intersection of these minimal irreducible monomial ideals equals $I$.

(c) Conclude that $I$ possesses a unique irredundant expression as an intersection of irreducible monomial ideals.

References