This outline will be revised during the semester.

I. Group Representations

Wednesday, February 17: group representations, Ch 10, Sec 1,4
   Exercises: Ch 10, 1.1, 1.2

Friday, February 19: unitary representations, Ch 10, Sec 2,3
   Exercises: Ch 10, 2.1, 2.2, 3.4

Monday, February 22: characters, Ch 10, Sec 4,5
   Exercises: Ch 10, 4.1, 4.3a,c, 4.8, 5.1, 5.3

Wednesday, February 24: the regular representation, Ch 10, Sec 6
   Exercises: Ch 10, 5.4, 6.1, 6.3

Friday, February 26: Schur’s Lemma, Ch 10, Sec 7
   Exercises: Ch 10, 7.1, 7.2

Monday, March 1: proof of the orthogonality relations, Ch 10, Sec 8
   Exercises: Ch 10, 7.4, 7.6

II. Rings

Wednesday, March 3: rings, ring homomorphisms, Ch 11, Sec 1,2,3
   Exercises: Ch 11, 1.1, 1.5, 1.8, 1.9

Friday, March 5: ideals, quotient rings, correspondence theorem, Ch 11, Sec 4,5
   Exercises: Ch 11, 3.12, 3.13, 4.1, 4.2

Monday, March 8: Holiday

March 9:
   adjoining elements (monday class held)
   Exercises:

Wednesday, March 10: maximal ideals, prime ideals, fractions, Ch 11, Sec 8,9
   Exercises: Ch 11, 6.1, 7.1, 8.3
III. Factoring

Friday, March 12:  *Gauss’ Lemma*, Ch 12, Sec 3  
Exercises:  Ch 12, 2.3, 2.7, 3.2  
Monday, March 15:  *unique factorization*, Ch 12, Sec 1,2  
Exercises:  Ch 12, 1.1, 1.5, 2.1, 2.2  
Wednesday, March 17:  *factoring integer polynomials*, Ch 12, Sec 4  
Exercises:  Ch 12, 4.1a, 4.6, 4.7, 4.11  
Friday, March 19:  *Gauss primes*, Ch 12, Sec 5  *(add date)*  
Exercises:  Ch 12, 5.1, 5.2b, 5.3  

Monday, March 22:  Holiday

IV. Quadratic Imaginary Integers

Wednesday, March 24:  *quadratic integers*, Ch 13, Sec 1  
Exercises:  Ch 13, 1.1, 1.2, 1.3a,c  
Friday, March 26:  *factoring ideals*, Ch 13 Sec 2,3  
Exercises:  Ch 13, 2.1, 3.1, 3.2, 3.3  
Monday, March 29:  *prime ideals*, Ch 13, Sec 5,6  
Exercises:  Ch 13, 5.3, 6.1, 6.2  
Wednesday, March 31:  *ideal classes*, Ch 11, Sec 9,10  
Exercises:  Ch 13, 7.1, 7.2, 8.2  
Friday, April 2:  *computing the class group*  
Exercises:
V. Linear Algebra in a Ring

Monday, April 5:  integer matrices, Ch 14, Sec 1, 2
Exercises: Ch 14, 1.1, 2.1, 2.4

Wednesday, April 7:  free modules, Ch 14, Sec 3, 4
Exercises: Ch 14, 3.2, 4.1a, 4.3

Friday, April 9:  presenting a module, Ch 12, Sec 5
Exercises: Ch 14, 5.1, 5.2

Monday, April 12:  Hilbert Basis Theorem, Ch 14, Sec 6
Exercises: Ch 11, 6.1, 6.2, M.1

Wednesday, April 14:  structure of abelian groups, Ch 14, Sec 7
Exercises: Ch 14, 7.1, 7.2, 7.5

Friday, April 16:  algebraic elements, degree, Ch 15, Sec 1,2
Exercises: Ch 15, 1.1, 1.3, 2.1

VI. Field Extensions

Monday, April 19:  Patriot’s Day, Holiday

Wednesday, April 21:  ruler and compass, Ch 13, Sec 5
Exercises: Ch 15, 5.1, 5.2

Friday, April 23:  adjoining elements
Exercises:

Monday, April 26:  finite fields, Ch 15, Sec 7
Exercises: Ch 15, 7.1, 7.2, 7.13

Wednesday, April 28:  primitive elements
Exercises:

Thursday, April 29: (drop date)

Friday, April 30:  symmetric functions, discriminant
Exercises:

Monday, May 3:  splitting fields, the Galois group, Ch 15, Sec 8
Exercises: Ch 15, 8.1, 8.2

Wednesday, May 5:  fixed fields, Galois extensions, Ch 16, Sec 5,6
Exercises: Ch 16, 5.1b,c, 6.1

Friday, May 7:  Holiday
VII. Galois Theory

Monday, May 10:  *main theorem of Galois theory*, Ch 16, Sec 3,4
  Exercises: Ch 16, 3.2, 4.1
  Exercises: Ch 16, 7.1, 7.3, 7.6, 7.7

Wednesday, May 12:  *cubic equations*, Ch 16, Sec 8
  Exercises: Ch 16, 8.2a,b,c

Friday, May 14:  *quartic equations*, Ch 16, Sec 9
  Exercises: Ch 16, 9.1, 9.6, 9.12a,b

Monday, May 17:  *roots of unity*, Ch 16, Sec 10,11
  Exercises: Ch 16, 10.1, 10.3, 11.1

Wednesday, May 19:  *quintic equations*, Ch 16, Sec 12
  Exercises: Ch 16, 12.1, 12.2, 12.7