Course Content

Course Outline

Notes

- Week 1: Basics of module theory: definition, sub/quotient modules, mapping properties (DF 10.1-10.2).
    - notes
    - pdf slides
    - recommended problems
- Week 2: More module theory: sums, products, free modules, decomposition (DF 10.3)
    - notes
    - pdf slides
    - recommended problems
- Week 3: Finitely generated modules over PIDs (DF 12.1)
    - notes
    - pdf slides
    - recommended problems
- Week 4: Canonical Forms (DF 12.2-12.3)
    - notes
    - pdf slides
    - recommended problems
- Week 5: Field theory basics: algebraic/transcendental extensions, field degree (DF 13.1-13.2)
    - notes
    - pdf slides
    - recommended problems
- Week 6: Field extensions: Constructibilty; splitting fields; separability, finite fields, cyclotomic fields (DF 13.3-13.5)
    - notes
    - pdf slides
    - recommended problems
- Week 7: Galois Theory (DF 14.1-14.2)
    - notes
    - pdf slides

- – recommended problems
- Week 8: Applications and Examples of Galois Theory
  - – notes
  - – pdf slides
- Week 9: Tensor products (DF 10.4)
  - – notes
  - – pdf slides
  - – recommended problems
- Week 10: Multilinear Algebra

Other topics to be decided later.