Instructor: Jim Brown

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Class Meeting:
MWF: 9:05 - 9:55 Daniel 401

Office Hours:
M 15:00 - 16:00
Th 10:30 - 11:30
(and by appt.)


Material: The foundational topics for this course are field theory, Galois theory, and the theory of modules. Other topics will be included as time permits.

Attendance: Attendance for this class will not be taken. However, it is important for you to attend class regularly to succeed in the course.

Cell Phones: Cell phones are to be turned to silent during class and exams. You should be paying attention and not playing on your phones during class.

Grading: Your final grade will be calculated based on the following:
Written Homework: 35 %
Midterm Exam: 25 %
Final Exam (cumulative): 40 %

The grading scale will be no worse than the following:
≥ 90%  A
≥ 80%  B
≥ 70%  C
≥ 60%  D

Exams:
Midterm:  02/18/15  18:30 - 20:30 in Martin M-104
Final:    05/01/15  8:00 - 10:30 in Daniel 401
The final exam is cumulative.

Make-up exams will not be given, regardless of the validity of the excuse for missing the exam. If you miss the midterm, the weight of the final exam will be adjusted to incorporate that exam as well. It is best not to miss the midterm if at all possible!

Homework: Approximately once a week I will hand out problems. You are strongly encouraged to work with others in the class on these problems, though you must cite any other students you worked with as well as any other sources consulted in your solutions. The proofs you turn in should be neat and represent your best effort. They should resemble the proofs you read in a paper or textbook. Homework will not include shorthand symbols such as ⇒, though they will be used at the blackboard.

Reading: The textbook is very readable. There is far too much material and too many examples to cover everything in class. You will be expected to read sections and work through the examples on your own. As such, you should realize this class will take a considerable amount of your time.

Learning objectives:

1. Write down bases for extension fields.
2. Compute the Galois group of a finite extension of fields.
3. Deduce information related to a field extension such as the number and relative degrees of its subextensions from its Galois group.
4. Compute the splitting fields of polynomials of small degree and will build an understanding of the general case.
5. Discern if a polynomial’s roots are expressible in terms of radicals by considering the Galois group of the splitting field of the polynomial.

6. Prove that there is no formula for the roots of an arbitrary quintic polynomial in terms of radical expressions involving the coefficients of the polynomial.

7. Compute the invariant factors and elementary divisors of a finitely generated module over a PID.

8. Compute the tensor product of two modules.

**Accommodations:** Students with disabilities who need accommodations should make an appointment with Dr. Arlene Stewart, Director of Disability Services, to discuss specific needs within the first month of classes. Students should present a Faculty Accommodation Letter from Student Disability Services when they meet with instructors. Student Disability Services is located in Suite 239 Academic Success Building (656.6848; sds-l@clemson.edu). Please be aware that accommodations are not retroactive and new Faculty Accommodation Letters must be presented each semester.

**Clemson University Title IX Statement:** Clemson University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender, pregnancy, national origin, age, disability, veterans status, genetic information or protected activity (e.g., opposition to prohibited discrimination or participation in any complaint process, etc.) in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by Title IX of the Education Amendments of 1972. This policy is located at http://www.clemson.edu/campus-life/campus-services/access/title-ix/. Mr. Jerry Knighton is the Clemson University Title IX Coordinator. He also is the Director of Access and Equity. His office is located at 111 Holtzendorff Hall, 864.656.3181 (voice) or 864.565.0899 (TDD).

**Academic Integrity:** As members of the Clemson University community, we have inherited Thomas Green Clemson’s vision of this institution as a “high seminary of learning.” Fundamental to this vision is a mutual commitment to truthfulness, honor and responsibility, without which we cannot
earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating or stealing in any form.