

**PRACTICAL INFORMATION**

Class hours: TR 2:00–3:20 pm  
Class room: MA 012  
Instructor: Lars Winther Christensen  
Office: MA 251  
Office hours: M 2:30–4 pm, T 3:30–4:30 pm, W 10:30–12:30 pm, and R 9–10:30 am  
or by appointment  
Phone: (806) 742-2580 x 366  
E-mail: lars.w.christensen@ttu.edu  
Course homepage: [www.math.ttu.edu/~lchrste/teaching4360092](http://www.math.ttu.edu/~lchrste/teaching4360092)

**COURSE DESCRIPTION**

Fundamental concepts of abstract algebra; primarily from ring theory and group theory.

**Prerequisites:** Math 3360 or consent of the department.

**Required text:** “Rings, Fields and Groups”, second edition, by R. B. J. T. Allenby.

**Expected learning outcomes:** Students learn how to think and reason abstractly in the context of algebraic structures and learn how to write correct and clear mathematical arguments in this context. Concepts to be mastered by the students include but are not limited to the following:

- Factor rings: Ring homomorphisms and the three isomorphism theorems.
- Fields: Construction of  $\mathbb{R}$  and  $\mathbb{C}$ , and The Fundamental Theorem of Algebra.
- Groups: The symmetric and alternating groups, cyclic groups, factor groups, Sylow’s theorems, and The Structure Theorem for Finite Abelian Groups.
- Galois theory: Splitting fields, separable field extensions, and solubility of polynomials.

**LEARNING ASSESSMENT**

Graded assessment is done through homework and exams. Other assessment techniques will also be used; these include direct questioning, problems to be solved in class, and discussions during office hours. Additionally, problems will be assigned for student self-assessment.

**COURSE ORGANIZATION**

The plan is to cover (major parts of) chapters 4–7 in “Rings, Fields and Groups”. Precise reading assignments will be posted on the course homepage after every class.

**Exams:** In-class exams take place on 19 Feb. and 2 April. The final exam is on 1 May, 1:30–4 pm.

**Other important dates:**

Martin Luther King Jr. Day	19 Jan.
Last day to drop a course and receive a refund	23 Jan.
Last day to withdraw and receive a partial refund	4 Feb.
Last day to drop a course	11 March
Spring Vacation	14–22 March
No classes	13 April

## ASSIGNMENTS, GRADES, AND GRADING

Two (2) in-class exams are given during the semester. Homework will be assigned 12 times during the semester. Students are encouraged to work on the homework problems in groups. Results and grades are posted at <http://www.webct.ttu.edu>.

**Grading policy:** On exams and written homework, partial credit for correct steps will be awarded even if the final answer is wrong. Full credit will be given only if the final answer and all intermediate steps are correct. A correct final answer *per se* does not guarantee any credit.

**Deadlines and make ups:** Homework is not accepted after the deadline. In-class exams cannot be made up; the final exam serves as make-up for in-class exams that were missed for legal reasons.

**Final grade:** Homework (10 assignments) and exams (3) are counted towards the final grade with weights as follows: Homework 35%, in-class exams 40% (20% each), and final exam 25%.

## GENERAL POLICIES

**Academic integrity:** It is the aim of the faculty of TTU to foster a spirit of complete honesty and a high standard of integrity. Any attempt of students to present as their own any work that they have not honestly performed is regarded by faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension. Please refer to the Texas Tech University Catalog p. 46–47 for more information on this subject.

**Civility in the classroom:** You are expected to be courteous to me and your fellow students. This means that your cell-phone should be turned off during the class; you shall not chat with your friends during class, eat meals or snacks, or cause a distraction in any other way. Please see more information on-line at [www.studentaffairs.ttu.edu/vpsa/publications/civility.htm](http://www.studentaffairs.ttu.edu/vpsa/publications/civility.htm).

**Officially approved trips:** Students are allowed to miss class for trips officially sanctioned by TTU. The student must notify the instructor of upcoming trips and present written authorization.

**Religious holy days:** You are allowed to take the time to travel and observe a religious holy day. Prior notice should be given at least 1 day before the absence.

**Students with disabilities:** Any student who, because of a disability, may require special arrangements in order to meet course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructors office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office at 335 West Hall or 806-742-2405.