

**MATH 3613, SECTION 002, SPRING 2016, SYLLABUS
INTRODUCTION TO MODERN ALGEBRA**

FACULTY: WEIPING LI
OFFICE: MS 526, PHONE #: (405)-744-5852, FAX #: 405-744-8275
WWW: [HTTP://WWW.MATH.OKSTATE.EDU/~WLI/](http://www.math.okstate.edu/~wli/)

1. BASIC COURSE INFORMATION

Prerequisites: Math 3013

Textbooks: (i) *How To Prove It: A Structured Approach* (2nd edition) by Daniel J. Velleman;
(ii) *Abstract Algebra: An Introduction* (3rd edition) by Thomas W. Hungerford; .

Teaching Notes and D2L: Available on D2L a few days before the class. D2L shared folder for this course will be sent to your email.

Content: Basic Algebraic Structures, Elementary properties of Groups, Rings, Integral Domains, and Fields. The course is the first course for students to start using Logic and Set to properly prove any math?statement. **It is essential to write in clear and complete language the reasoning used in solving a problem. Answers along will not receive full credit.**

Course Overview on Introduction to Modern Algebra: Start from Division Theorem and Unique Prime Factorization, we study modular arithmetics and its group and ring structures. Then we extend this first to polynomials to introduce the ideals and quotient rings. Arithmetic in integral domains to field extensions and Galois theory. Along these core materials, we set up basic logics and proofs with The Chinese Remainder Theorem, Public key Cryptography and Algebraic Coding Theory.

Class Time: TTR 12:30pm–01:45pm, start from January 12, 2016.

Class Room: Morrill Hall 307.

University Drop Policy: Check the university drop policy! The following is based on Enrollment Guide for Spring 2016.

The last day to drop the course with no grade is Tuesday, January 19, 2016. A grade of W will be recorded if the course is dropped after January 19 and before the end of Friday, April 8, 2016. The W/F Withdraw Deadline of the course is Friday, April 22, 2016.

Office Hours: TTR 01:45pm–02:30pm. Open door policy with the following caveats:

- (1) Ask your questions by e-mail first. In many cases the answer can be easily replied through e-mail and you can expect it within a reasonable time.

- (2) In case you expect to have a long meeting, please try to arrange a mutually convenient time with me first.
- (3) No TA for this course, be patient for the homework and exam returns. (Hopefully there will be one TA to help me on grading)

2. EXAMS, HOMEWORK AND GRADE

Your grades will be determined by the scores on the middle-term exam (100 points), the final exam (100 points), and homework (200 points).

A as 340–400;

B as 300–339;

C as 260–299;

D as 220–259;

F as 0–219.

Middle-Term Exam: March 22, 2016, TTR 12:30pm–01:45pm at Morrill Hall 307.

FINAL EXAM: Tuesday May 3, 2016, 10:00am–11:50am at Morrill Hall 307.

Each homework Assignment will be picked from textbooks and will be announced in **D2L** for due day. If you cannot hand in homework on time or cannot make exam, the homework/exam you miss will be counted a zero. **No Make-up exam. No Late Homework.** Earlier homework is acceptable.

Academic Calendar and Syllabus Attachment:

<http://registrar.okstate.edu/Academic-Calendar>

<https://academicaffairs.okstate.edu/sites/default/files/documents/Spring%202016%20Syllabus%20Attachment.pdf>

<http://go.okstate.edu/student-life>

3. OFFICE AND POLICIES

3.1. Main Office. Main office of Math Department 401 MS, phone number: 405–744–5688. Fax number: 405 – 744 – 8275.

Classroom and Email

Class attendance is essential to your success in the course. You are responsible for all the material covered in the class.

Etiquette: As a courtesy to others in the classroom, please turn off and stow all electronic devices before class begins. **No cellphone ring or call during the class time in the classroom.**

All your emails will be answered to everyone in the class unless you specify the No Reply (This is to avoid the asymmetry information for other students).

3.2. Missed Work Policy. MATHEMATICS DEPARTMENT MODEL POLICY ON MISSED WORK

(A) A student shall be offered reasonable accommodation in the event that he or she misses a major assessment activity for a valid and documented reason.

(B) Appropriate documentation shall be provided by the student in a timely fashion to support his or her request for accommodation.

(C) Major assessment activities are those such that a zero on that activity could reasonably be foreseen to impact the students grade substantially; this category includes, but is not limited to, exams.

(D) Valid reasons include official University activities, activities associated with military service, illness, family emergencies, mandatory court appearances, and any other events of comparable gravity.

(E) Reasonable accommodation means that the student will be given the opportunity to earn a grade on the assessment activity that is based on criteria as similar as possible to those used to grade his or her classmates. This opportunity should normally be made available in a timely fashion.

Academic integrity: Here is a brief statement of the OSU policy: “Oklahoma State University is committed to the maintenance of the highest standards of integrity and ethical conduct of its members. This level of ethical behavior and integrity will be maintained in this course. Participating in a behavior that violates academic integrity (e.g., unauthorized collaboration, plagiarism, multiple submissions, cheating on examinations, fabricating information, helping another person cheat, unauthorized advance access to examinations, altering or destroying the work of others, and fraudulently altering academic records) will result in your being sanctioned. Violations may subject you to disciplinary action including the following: receiving a failing grade on an assignment, examination or course, receiving a notation of a violation of academic integrity on your transcript (F!), and being suspended from the University. You have the right to appeal the charge. Contact the Office of Academic Affairs, 101 Whitehurst, 405-744-5627, academicintegrity.okstate.edu.”

Note: Informal discussion of homework assignments with other students can be helpful, but you must write up your solutions in your own words and based on your own work. Here are examples of violations of academic integrity: joining with others in writing solutions on the board and then copying them on your paper; examining another student’s written work before submitting an assignment; using solutions obtained from the Internet.

4. HOMEWORK

- (1) HW1. §1.1: 4, 5, 6, 7, 8, 9;
- (2) HW2. §1.2: 4, 5, 6, 7, 11, 16, 20, 22, 24, 25.
- (3) HW3. §1.3: 5, 8, 11, 12, 16, 17, 18, 21, 24, 27.
- (4) HW4. §2.1: 1, 3, 5, 8, 10, 11, 16, 20, 26, 27, 33.
- (5) HW5. §2.2: 2, 8, 9, 11; §2.3: 1, 8, 9, 10, 11.
- (6) HW6. §3.1: 6, 8, 9, 13, 16, 20, 22, 31, 34, 35.
- (7) HW7. §3.2: 2, 7, 8, 12, 16, 23, 25, 30, 31.
- (8) HW8. §3.3: 4, 7, 9, 10, 15, 17, 30, 39, 40.
- (9) HW9. §4.1: 3, 7, 8, 9, 11, 12, 15, 18; §4.2: 2, 4, 5(b), 9, 10, 14, 15.
- (10) HW10. §4.3: 3, 5, 6, 11, 13, 21, 22, 23; §4.4: 5, 10, 11, 12, 14, 19, 28.
- (11) HW11. §4.5: 6, 14, 20; §5.1: 2, 5, 8; §5.2: 6, 9, 10, 16.
- (12) HW12. §6.1: 3, 6, 7, 25, 27, 35, 38; §6.2: 4, 8, 14, 17, 21, 25.
- (13) HW13. §7.1: 3, 9, 21, 25; §7.2: 7(b), 7(d), 13, 18, 22, 33.
- (14) HW14. §7.3: 3, 7, 22, 23, 25, 33, 38, 39; §7.4: 4, 9, 10, 16, 21, 24, 25.

DEPARTMENT OF MATHEMATICS, OKLAHOMA STATE UNIVERSITY
STILLWATER, OKLAHOMA 74078-0613

E-mail address: `wli@math.okstate.edu`