UNIVERSITY OF SOUTH FLORIDA

MAS 4302-001 – Spring 2017
Elementary Abstract Algebra II – 3 credit hours

Instructor: Dr. Dmytro Savchuk

Office: CMC 310   **Office Hours:** TR 9:50am – 10:50am
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Course Meeting Times: TR 12:30am – 1:45pm, CHE 302

Course Webpage: http://savchuk.myweb.usf.edu/teaching/2017A_MAS4302_elem_algebraII/

Prerequisite(s): MAS 4301

Text: *A First Course in Abstract Algebra* by John B. Fraleigh, 7th Edition, Pearson Addison Wesley.

Course Topics: We cover advanced topics in abstract algebra, including ring theory and field theory; introduction to Galois theory. These are primarily parts IV, V, VI, and X of the text.

Course Objectives: The course will accustom students with advanced algebraic structures. It will provide background in the theory of polynomials and a sufficient base for any graduate level algebra course. The course will emphasize on concepts, methods of proof, and the communication of mathematical ideas.

Course Learning Outcomes: Given an ideal in a ring, a student will be able to compute the quotient ring. Given an ideal, student will be able to determine if it is prime, maximal or principal. Given a field extension, student will be able to determine if it is algebraic, separable or splitting. Given a fifth degree polynomial, student will be able to determine if it is solvable in radicals.

Course Grades: The university's +/- grading policy will be used in assigning course grades. If your overall percentage of total points falls into the following range, you will receive the corresponding grade:
97-100 (A+), 93-96 (A), 90-92 (A-), 87-89 (B+), 83-86 (B), 80-82 (B-),
77-79 (C+), 73-76 (C), 70-72 (C-), 67-69 (D+), 63-66 (D), 60-62 (D-), 0-59 (F).

Homework: A few problems will be assigned from each section covered. It will be due two class meetings after the section was covered (see the tentative schedule below). Late homework will **not** be accepted. Students are expected to work independently on all homework assignments.

Exams: There will be 3 in-class tests and the final cumulative exam. The *tentative* dates for the exams are:
Exam 1: February 7 (Tueday, Week 5)
Exam 2: March 9 (Thursday, Week 9)
Exam 3: April 20 (Thursday, Week 14)
Final Exam: May 4 (Thursday, 10:00am – 12:00am, CHE 302)

Makeup Exams: *Makeup exams will be given at the discretion of the instructor*. Thorough documentation of the student's reason for missing an exam must be provided before a makeup will be considered.

Grading:
- Homework 20%;
- Midterm Exams and the Final 20% each (the lowest grade will be dropped);
- Quizzes: 20%

Attendance: Attendance is expected and will be checked periodically.

Contingency Course Plan: In the event of an emergency, it may be necessary for USF to suspend normal operations. During this time, USF may opt to continue delivery of instruction through methods that include but are not limited to: Blackboard, Elluminate, Skype, and email messaging and/or alternate scheduling. It is the responsibility of the student to monitor the main USF website, emails and MoBull messages for important information about the closure. For information about the continuation of instruction, students are directed to their individual blackboard course sites.

Retaining Records: You should keep all of your returned homework and exams until you receive your final grade. You will need these to demonstrate that a grade was incorrectly recorded, should that happen.

Miscellaneous Policies:
- *Please* do not hold conversations, either with your classmates or your cell phone, during the lecture sessions. (Turn your cell phone off and keep it out of sight at all times.)
- Cheating will **not** be tolerated. Please refer to the Undergraduate Catalog for clarification of the university policy on Academic Dishonesty.
- Students who must miss a class period due to a major religious observance must notify the instructor of this absence, in writing, by the end of the second week of classes.
- Any student with a disability is encouraged to meet privately with the instructor during the first week of classes to discuss accommodations. The student must bring a current Memorandum of Accommodations from the Office of Student Disability Services (SVC 1133). This is a prerequisite for receiving accommodations. Exam accommodations through SDS usually require two weeks advance notice.
  Note: If you need extra time on exams, you *must* make arrangements to take your exams with the SDS office. You *cannot* receive extra time if you choose to take your exams with the course instructor.

- You are encouraged to take notes during lectures, but your notes are not to be sold.
- All unauthorized recordings of class are prohibited. Recordings that accommodate individual student needs must be approved in advance and may be used for personal use during this semester *only*; redistribution is prohibited.
- S-U Policy: Students who want to take this course for a grade of S-U must sign the S-U contract no later than the end of the third week of classes. There will be **no** exceptions.
- A grade of "I" indicates incomplete work and will only be considered when most of the coursework has already been completed with a passing grade (C or better).

Tentative Schedule:

Week	Tuesday	Thursday
1	*Jan 10* First day of class; Cover §18	*Jan 12* Cover §19, §21
2	*Jan 17* Cover §22; Due: §18	*Jan 19* Cover §23; Due: §19, §21
3	*Jan 24* Cover §26; Due: §22	*Jan 26* Cover §27; Due §23
4	*Jan 31* Cover §45; Due: §26	*Feb 2* Catch-up/Q&A/Review; Due §27
5	*Feb 7* Exam 1	*Feb 9* Cover §29;
6	*Feb 14* Cover §30; Due: §45	*Feb 16* Cover §31; Due: §29
7	*Feb 21* Cover §32; Due: §30	*Feb 23* Cover §33; Due: §31
8	*Feb 28* Cover §48; Due: §32	*Mar 2* Cover §49; Due: §33
9	*Mar 7* Catch-up/Q&A/Review; Due: §48	*Mar 9* Exam 2; Due: §49
	USF Spring Break (March 13 – March 17)	
10	*Mar 21* Cover §50	*Mar 23* Cover §51
11	*Mar 28* Cover §51; Due: §50$_1$	*Mar 30* Cover §53; Due §50$_2$, §51$_1$
12	*Apr 4* Cover §54; Due §51$_2$	*Apr 6* Cover §55; Due: §53
13	*Apr 11* Cover §56; Due: §54	*Apr 13* Cover §35; Due: §55
14	*Apr 18* Catch-up/Q&A/Review; Due §56	*Apr 20* Exam 3
15	*Apr 25* Last day of class; Review	*Apr 27* Reading Day
16	*Thursday, May 4, 10:00am – 12:00pm* Final Exam (cumulative):	

Homework Problems:

§	Problems
18	12, 28, 33acej, 37, 51, 52
19	2, 3, 17bfhj, 28, 29
21	4degj, 12, 14, 16
22	14, 15, 22, 23adei, 24, 27
23	2, 4, 9, 10, 16, 17, 20, 21, 25acgi, 32, 33, 36, 37
26	1, 3, 4, 10bdh, 11, 17, 18, 20, 29
27	2, 5, 7, 8, 14abci, 20-23, 29, 30, 31
45	3, 5, 15, 17, 21bcdh, 23, 25, 26, 27, 28
29	2, 5, 6, 9, 11, 18, 25abefj, 28, 30, 31, 36
30	5, 6, 7, 10, 15aceg, 16-18, 21, 24, 26
31	1, 4, 6, 10, 19abeh, 20-23, 25, 27, 31, 33, 36
32	3, 4, 5
33	1, 3, 4, 6, 8abdg, 10, 11, 12
48	1, 2, 7, 11, 12, 15, 22, 26, 29abcdj, 30-34, 38
49	1, 2, 3, 4, 6, 8abef, 10, 11, 13
50_1	2, 6, 7, 8, 9, 10, 14abeh, 15, 17, 18
50_2	19, 20, 22, 25
51_1	1, 3, 8abdf, 9, 12
51_2	15, 16, 17, 18
52	2, 3, 6, 9, 11, 14, 16, 20, 22, 24
54	1, 2, 3, 4, 5, 8, 13
55	2, 6, 7, 9abcd, 10, 11, 14
56	2, 3abch, 4, 6, 7, 8
35	8, 11, 17ehj, 25, 26, 29