University of Texas at El Paso – College of Science – Department of Mathematical Sciences

Math 5370 (3 credits)   **ALGEBRAIC STRUCTURES**   Fall 2016
CRN 17182   **Syllabus**
TuTh 5:00–6:20, BELL 130A

Instructor: **Dr. Art Duval**

    office: **Bell Hall 303**

    phone: **747-6846**/office (24hrs./day; if I'm not in, please leave a message)
               747-6502/fax   (include a cover sheet with my name, please)
               545-1788/home (9am–9pm only, please)

    internet: aduval@utep.edu
               http://www.math.utep.edu/Faculty/duval/home.html

    Office hours: **Mon, 9:00–10:00; Tue, 10:00–11:00; Thu, 1:00-2:00.** Please feel free to come by my office any time during scheduled office hours. You are welcome to visit at other times, but in that case you might want to make an appointment, just to make sure that I will be there then. You can make an appointment simply by talking to me before or after class, by calling me at my office or at home, or by sending e-mail.

    As this is an evening class, I will make an extra effort to be available both before and after class.

    You may also ask any questions directly via phone or e-mail. If I'm not in when you call, please leave a message on the voice-mail or answering machine with your name, number, and a good time for me to call you back. I will try to respond to your phone or e-mail message as soon as possible.

Website: http://www.math.utep.edu/Faculty/duval/class/5370/164/home.html
    Here you will find this syllabus with relevant links, including homework and reading assignments for the whole semester, as they are announced. Other resources may become available.

Prerequisites: MATH 3325, or instructor approval

COURSE OBJECTIVES: Upon successful completion of this course, you will be able to rigorously justify and explain the results and techniques from elementary algebra that show up in the standard high school algebra curriculum. You will be able to use fields, rings, and groups to analyze objects including polynomial rings, the ring of integers, and fields of real and complex numbers. Additionally, you will increase your ability to think mathematically.

Textbook: **Learning Modern Algebra: From Early Attempts to Prove Fermat's Last Theorem, by Cuoco and Rotman, Chapters 1–7.** We will skip some sections, as announced in class.

    For each section, you will have reading questions in advance, which you should be prepared to answer in class when we start discussing that section together. Some of these questions will be open-ended, and possibly have more than one good answer. This is also the time for you to raise any questions or comments you have about the material. Read each section carefully after class to clarify and fill in details you missed in class.

GRADES:

Participation (10%) Large portions of class time will be given to student presentations of solutions to routine problems from the textbook, while I serve as moderator. Presentations will be evaluated on: the quality and correctness of the content; the clarity of the presentation; the difficulty of the problem; and the frequency of your contributions.

When you are in the audience, you are still expected to be actively engaged in the presentation. This means checking to see if every step of the presentation is clear and convincing to you, and speaking up when it is not. Note that by speaking up in these situations, you will probably **help** the presenters' grades, by giving them a chance to improve their presentation! When there are gaps in the reasoning, the class will work together to fill the gaps.

Your answers to reading questions, and participation in the follow-up discussions, will also contribute to your participation grade.

Your participation grade will be based on your **overall** contribution to this part of the course (which includes forward progress, making sure presentations are complete and correct, raising questions, and helping other students' understanding). Presentations will count approximately the same weight as audience participation. I will use the following rubric:

A Clear, correct presentations to almost all problems; good answers to most reading questions; helpful audience participation including appropriate feedback and good questions.

B Correct presentations to most problems; reasonable answers to most reading questions; active audience participation including questions and discussions.

C Correct presentations to easier problems, and reasonable attempts at other problems; good answers to routine reading questions; responding in the audience when called on, posing questions when you are confused, and participating in discussions.

D Less than satisfactory work, but an apparent honest effort to understand material. At least some presentations with reasonable attempts; answers to some reading questions; participating in the audience with questions or comments.

Homework (40%) Written homework will be assigned weekly, announced in class, and posted on the course website. These solutions should be written clearly and completely. Assignments will be due at the *beginning* of class, and will not be accepted after then, except in extenuating circumstances that you explain to me as soon as possible. Incomplete homeworks will be accepted, though, so please turn in whatever work you have completed when homework is due. You are encouraged to work together on your homework, but you must write up your solutions by yourself. Your lowest homework score will be dropped.

Midterm (20%) The midterm will cover all material we have discussed to that point.

$$\boxed{\text{Thu. 13 Oct.}}$$

Final (30%) The final exam will be comprehensive over all material we discuss in class.

$$\boxed{\text{Tue. 6 Dec., 4:00–6:45 p.m.}}$$

Makeup exams can be given only in extraordinary and unavoidable circumstances, and with advance notice.

POLICIES:

Academic dishonesty: It is UTEP's policy, and mine, for all suspected cases or acts of alleged scholastic dishonesty to be referred to the Office of Student Conduct and Conflict Resolution for investigation and appropriate disposition. See Section II.1.2.2.1 of the Handbook of Operating Procedures.

Attendance: Due to the course structure, attendance is mandatory. There is no particular penalty for missing a particular class, but you cannot get a good participation grade if you miss too many classes. I will usually "excuse" an absence if you tell me about it in advance, or, in cases of emergencies, as soon as possible afterwards. My goal is for class meetings and activities to complement, rather than echo, the textbook, and thus for every class to be worth attending.

Drop date: The deadline for student-initiated drops with a W is Friday, October 28. After this date, you will not be able to drop the class (as per the Dean's office). Furthermore, a grade of incomplete is only for extraordinary circumstances, such as a missed exam.

I hope everyone will complete the course successfully, but if you are having doubts about your progress, I will be happy to discuss your standing in the course to help you decide whether or not to drop. You are only allowed three enrollments in this course, and students enrolled after Fall 2007 are only allowed six withdrawals in their entire academic career, so please exercise the drop option judiciously.

Courtesy: We all have to show courtesy to each other, and the class as a whole, during class time. Please arrive to class on time (or let me know when you have to be late, and why); do not engage in side conversations when one person (me, or another student) is talking to the whole class; turn off your cell phone (or, for emergencies, at least set it to not ring out loud), and do not engage in phone, email, or text conversations during class.

Disabilities: If you have, or suspect you have, a disability and need an accommodation, you should contact the Center for Accommodations and Support Services (CASS) at 747-5148, `cass@utep.edu`, or Union East room 106. You are responsible for presenting to me any CASS accommodation letters and instructions.

Exceptional circumstances: If you anticipate the possibility of missing large portions of class time, due to exceptional circumstances such as military service and/or training, or childbirth, please let me know as soon as possible.