

**THE UNIVERSITY OF TEXAS AT EL PASO**  
**COLLEGE OF SCIENCE**  
DEPARTMENT OF MATHEMATICS

**Seminar - 16534 - MATH 5370 – Algebra & Number Theory**

5:00 - 6:20 pm	TR	BELL 130	Fall 2018
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Instructor: Dr. Emil Schwab  
Office Location: BH 201  
Contact Info: Phone # 747-6758  
E-mail address: [eschwab@utep.edu](mailto:eschwab@utep.edu)

Office Hrs: TR 3 – 4 p.m. or by appointment

Textbook: A textbook is not required.  
Reference: Elementary Number Theory/ David M. Burton

Contents: This course is designed for graduate students in the MATM Program to explore arithmetic from an advance standpoint of algebraic structures as an integrated approach. Topics include: groups and rings (in particular, the additive group of integers and its subgroups, the ring of integers and its ideals), arithmetical properties of rings ( in particular divisibility theory in the integers, primes and their distribution) congruences on groups and rings (in particular, the theory of congruences in the integers, the Chinese Remainder Theorem, Fermat's Theorem, Wilson's Theorem) and the ring of arithmetic functions with Dirichlet convolution (including the group of multiplicative arithmetic functions, the Möbius inversion formula, Euler's Phi-function and Euler's Theorem).

Goal: This class deepens students' understanding of concepts, and students' ability to think abstractly and to elaborate rigorous proofs.

Exams and Assignments: There will be two exams. Homework will be assign regularly. The homework will not be collected, but will be discussed in class. The exams will include problems from homework.

Grading Policy: Each exam (worth of 100 points) represents 50% of the final grade. The final grade will be determined by the average of the exam's scores respecting the following grading scale:

A 85-100; B 70-84; C 55-69; D 40-54; F below 40.

Make-up Policy: Make-ups/retests will be given only under extraordinary circumstances documented by the student and at the discretion of the instructor.

Attendance & Withdrawal: It is the student's responsibility to attend class, to be in contact with all the information transmitted in the class and to make up the work for the missed class. It is expected that everyone attend every class and arrive on time.

It is the student's responsibility to drop the course, the deadline to drop with an automatic W is **Nov 2**, 2018. The student may be dropped by the instructor for excessive absences (4 or more absences of the class meetings). After the drop deadline the College of Science will not approve any drops (W) and you can be dropped only with an F.

Academic Integrity Policy: Students are required to follow UTEP policy (Academic Dishonesty at UTEP) and to comply with the Regents' Rules and Regulations.

<http://academics.utep.edu/Default.aspx?tabid=23785>

<http://www.utsystem.edu/bor/rules/homepage.htm>

Disability Statement: If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to [cass@utep.edu](mailto:cass@utep.edu), or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at [www.sa.utep.edu/cass](http://www.sa.utep.edu/cass). The student is responsible for presenting to the instructor any CASS accommodation letters and instructions.

Military Statement: If you are a military student with the potential of being called to military service and/or training during the course of the semester, you are encouraged to contact the instructor as soon as possible.