MATH 3313.001, Foundations of Number Theory  
Department of Mathematics and Statistics

Fall 2019

A. COURSE INFORMATION

Course number/section: CRN 95587, MATH 3313.001  
Class meeting time: Tuesday and Thursday from 2 to 3:15 pm.  
Class location: OCNR-115  
Course Website: TAMU-CC Blackboard https://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: George Tintera  
Office location: CI 319  
Office hours: Tuesday to Thursday, 10 to 11 am and 3:30 to 5:30 pm  
Telephone: 361-825-6028  
E-mail: george.tintera@tamucc.edu only  
Appointments: Appointments outside of office hours are available by request.

C. COURSE DESCRIPTION

Catalog Course Description

This course assists a student’s transition to advanced mathematics. Fundamentals of logic and proof are reviewed and applied to topics from elementary number theory.

D. PREREQUISITES/COREQUISITES

Prerequisite: MATH 2414, Calculus II and MATH 2305, Discrete Mathematics

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

A Transition to Advanced Mathematics, by Smith, Eggen and St. Andre, Brooks/Cole, Any version may be used.

Supplies  
Regular access to high speed internet and Microsoft Office applications (e.g., Word, Power Point), calculator.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are
expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

If the student meets the expectation of the instructor for completing assigned tasks, reflecting on the daily activities, studying the key concepts discussed during class, and getting additional help when needed, then the student will be able to:

- Understand the structure and properties of real numbers
- Read and understand arguments involving set theory and logic with minimal assistance from the instructor
- Generalize mathematical observations of special cases
- Write proofs of basic results in analysis which include multiply quantified statements
- Present mathematically precise arguments to peers, beginning college students, and secondary school students
- Develop reasoning skills needed in higher mathematics course work and mathematics teaching

G. INSTRUCTIONAL METHODS AND ACTIVITIES

The course will be a combination of brief instructor summaries of sections with ensuing reading assignments, homework assignments and discussion of presented work.

H. MAJOR COURSE REQUIREMENTS AND GRADING

Grades will be based on the percentage of total points the student earns. There will be points given on the following:

<table>
<thead>
<tr>
<th>ACTIVITY/ASSIGNMENT</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>Written Homework</td>
<td>50%</td>
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<tr>
<td>Midterm Exam</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>30%</td>
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- **Written Homework.** Students will regularly write solutions as they work through the content in the textbook. That written work will be collected and graded for completeness and correctness or be graded based on oral presentation by the student.
- **Midterm Exam.** There will be a midterm exam about halfway through the course.
- **Final Exam.** There will be a comprehensive final exam on Tuesday, December 10 from 1:45 pm to 4:15 pm.

Final grades will be assigned according to the following table:
Percentage Grade
≥90.0% A
≥80.0% B
≥70.0% C
≥60.0% D
Below 60% F

I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Assignments</th>
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<tbody>
<tr>
<td>Weeks 1-3</td>
<td>Review of Methods of Proof, Mathematical Induction</td>
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<tr>
<td>Weeks 4-6</td>
<td>Sets as used in number theory</td>
<td></td>
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<tr>
<td>Weeks 7-8</td>
<td>Functions and Cardinality</td>
<td></td>
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<tr>
<td>Weeks 10-12</td>
<td>Concepts of Number Theory</td>
<td></td>
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<tr>
<td>Weeks 13-14</td>
<td>Topics in Number Theory</td>
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<tr>
<td>12/10</td>
<td>Final Exam</td>
<td>Final Exam</td>
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August 26 First Day of Classes
Mid to Late Oct. Midterm Exam
November 8 Last Day to Drop a Class
November 28 Thanksgiving Day – No class
December 3 Last Day of Classes
December 5 Reading Day
December 10 Final Exam 1:45 PM-4:15 PM

Note: Changes in this course schedule may be necessary and will be announced in class by the instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

J. COURSE POLICIES

Attendance/Tardiness: You are expected to attend every class session, and arrive on time. There is no make up for class activities, you need to be present to participate. All the absences will be considered “unexcused” unless you have an exceptional situation (e.g., documented illness, family situation) acceptable to the instructor or under university policies and information is provided in a timely manner (ahead of time or when first possible.)

Late Work and Make-up Exams: Late assignments will not be accepted, unless exceptional circumstances prevent you from completing them. Extension of deadlines will be at the instructor’s discretion. Late assignments may result in partial or total loss of credit. There are NO make-ups for exams or in-class activities.
Extra Credit: There may be extra credit offered for this course. This possibility will be announced and discussed in class.

Cell Phone Use: Please silence phones and put them in a backpack or purse before arriving to class. There should be no texting in class. Let the instructor know if there are special circumstances in which you need to receive notification.

Laptop Use: In general, you cannot use your laptops during class activities or exams. For special circumstances (e.g., presentations), or special needs, please talk with the instructor.

Food in Class: Refrain from bringing food to class. For special needs or occasions, please talk with the instructor.

Missed Exam: Exceptional circumstances (e.g., documented illness, family situations) may be considered at the instructor’s discretion.

Participation: You are expected to come to class prepared every time, and participate in class activities.

K. COLLEGE AND UNIVERSITY POLICIES

• Academic Integrity (University)
  University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

• Classroom/Professional Behavior
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

• Statement of Civility
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the
University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**
  I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. **Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course.** Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar ([http://www.tamucc.edu/academics/calendar/](http://www.tamucc.edu/academics/calendar/)) for the last day to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage at [http://sci.tamucc.edu/students/GradeAppeal.html](http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

  If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816. [http://disabilityservices.tamucc.edu/](http://disabilityservices.tamucc.edu/)
• **Statement of Academic Continuity**
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

**L. OTHER INFORMATION**

• **Academic Advising**
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

**GENERAL DISCLAIMER**

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.