Math 3101 (MW12) Spring 2024

Prerequisites: Math 2201 Multivariable Calculus, Math 2001
Transition to Advanced Mathematics, and 2101 Linear Algebra I

Instructor: Dr. Anthony E. Clement   **Email**: aclement@brooklyn.cuny.edu

Office hours: Mondays and Wednesdays: 12:15 - 12:45 PM
in room 1317 IH and or by appointments.

Textbook: A First Course In Abstract Algebra
Eight Edition
Authors: John B. Fraleigh and Neal E. Brand

Lectures:	Mondays	Wednesdays
Time:	12:50 - 2:05 PM	12:50 - 2:05 PM

Room: 4428 IH (Ingersoll Hall)

Attendance and Punctuality: Students are required attend
all classes and to be punctual.

Exams: There will be a midterm and a final exam. The midterm counts
50% and the final counts 50%.
Tentative Dates:
Review Midterm Exam: Wednesday March 20th 12:50-2:05 PM, 4428 IH;
Midterm Exam: Wednesday March 27th 12:50 - 2:05 PM, 4428 IH;
Review Final Exam: Wednesday May 15th, 12:50 - 2:05 PM, 4428 IH;
Final Exam: Wednesday May 22nd, 1:00 - 3:00 PM, 4428 IH

Grading Scale: < 60 (F),
60 - 62 (D-),   63 - 66 (D),   67 - 69 (D+),
70 - 72 (C-),   73 - 76 (C), 77 - 79 (C+),
80 - 82 (B-),   83 - 86 (B), 87 - 89 (B+),
90 - 92 (A-),   93 - 97 (A), 98 - 100 (A+)

Homework Assignments: A number of selected problems will be
assigned every class. These problems should be prepared to be
sent in, if requested. There will be in class and the end of the week
homework assignments discussions/presentations.

Extra Credits: Homework assignments, when collected, together with
attendance, will count as 4 points extra into the final class grade.

Goals and Objectives: Students will
(1) demonstrate a conceptual understanding of groups, rings, and fields.
(2) use the language of Abstract Algebra (notations and terms) accurately
and appropriately in verbal and written form - learn and work with the
abstract notions of groups, rings, and fields using familiar examples.

(3) understand and apply fundamental algebraic methods and reasoning.
(4) learn the importance of mathematical rigor - improve their ability to think, learn, read, and write correct mathematical proofs.
(5) participate in class discussions.

A few Study Tips:
(1) Keep organized notes of class lectures.
(2) Review class notes <u>daily</u> in order to reinforce understanding.
(3) Spend at least 5-6 hours every week (outside class lectures) on reviewing course materials and doing problems.
(4) Write (in 3-4 sentences) a summary of each class lesson with supporting examples.
(5) Read the textbook in order to provide background for class lectures.
(6) Do the homework assignments.
(7) Allow adequate time to review before the midterm and final exams.

The following techniques are taken from an excerpt in "Promoting Student Metacognition" (Kimberly Tanner):

For each class ask yourself: (Planning-Monitoring-Evaluating)
(1) What do I already know about the topic and what more do I need to know?
(2) What questions or insights do I have during class?
(3) How did the materials of today's class relate to previous classes?

For each homework assignment ask yourself: Planning-Monitoring-Evaluating
(1) What resources do I need to complete this task?
(2) What is most challenging about the task?
(3) To what extend did I use resources available to me to complete the task?

For each exam ask yourself: (Planning-Monitoring-Evaluating)
(1) What strategies will I use to study (Instructor's notes, homework assignments, office hours, study groups)?
(2) Am I struggling with my motivation to study? If so, do I remember why am I taking the course?
(3) How did my answers compare with the suggested correct answers?

For the overall course ask yourself: (Planning-Monitoring-Evaluating)
(1) Why is it important to learn the materials in this course? What do I want to be able to do by the end of this course?
(2) How interested am I in this course? How confident am I in my learning? What could I do to increase interest and confidence?
(3) What have I learned about how I learn in this course that I could use in my future courses? In my career? What will I still remember 5 years from now that I learned in this course?

Some Information Regarding College Deadlines for Spring 2024:

Thursday, January 25th: First day of classes for spring 2024
Wednesday, January 31st: Last day to drop a course
Monday February 12th: College closed
Thursday February 15th: W Grade assigned if officially withdraw
Monday February 19th: College closed
Thursday February 22nd: Classes follow a Monday schedule
Saturday February 24th: WA grades assigned - Immunization non-compliance
Monday April 22nd - Tuesday April 30th: Spring Recess
Wednesday May 15th: Last day of classes
Wednesday May 15th: Last Day to withdraw from course with a W grade
Thursday May 16th - Wednesday May 22nd: Final Exams

Center for Student Disability Services:
In order to receive disability-related academic accommodations students
must first be registered with the Center for Student Disability Services.
Students who have a documented disability or suspect they may have
a disability are invited to set up an appointment via (Zoom or Blackboard
Collaborate Ultra) or in person in room 138 Roosevelt Hall with the
Assistant Director of the Center for Student Disability Services,
Ms. Josephine Patterson email **Josephine.Patterson@brooklyn.cuny.edu**
or **testingcsds@brooklyn.cuny.edu** (718-951-5538). If you have
already registered with the Center for Student Disability Services please
provide your professor with the course accommodation form and discuss
your specific accommodation with him/her.

University's policy on Academic Integrity:
The faculty and administration of Brooklyn College support an
environment free from cheating and plagiarism. Each student is
responsible for being aware of what constitutes cheating and plagiarism
and for avoiding both. The complete text of the CUNY Academic
Integrity Policy and the Brooklyn College procedure for implementing
that policy can be found at this site: http://www.brooklyn.cuny.edu/bc/policies.

Academic Integrity Pledge:

I ——————————————————— pledge that I will not:
* use notes/cheat during a closed book examination.
* use any electronic devices such as cell phones, computers, or other technologies to retrieve or send information during an examination.

Student Name: ————————————————————————

ID No:————————————————————

Signature:——————————————————— Date :——————————

Math 3101 course outline from the textbook:

A First Course in Abstract Algebra 8th ed
by John B, Fraleigh and Neal E. Brand

Section 0
Sets and Relations

Part I Groups and Subgroups:
Section 1 - Binary Operations
Section 2 - Groups
Section 3 - Abelian Examples
Section 4 - Nonabelian Examples
Section 5 - Subgroups
Section 6 - Cyclic Groups
Section 7 - Generating Sets and *Cayley Digraphs

Part II Structure of Groups:
Section 8 - Groups of Permutations
Section 9 - Finitely Generated Abelian Groups
Section 10 - Cosets and the Theorem of Lagrange
Section 11* - Plane Isometries

Part III Homomorphisms and Factor Groups:
Section 12 - Factor Groups
Section 13 - Factor-Group Computations and Simple Groups

Part V Rings and Fields:
Section 22 - Rings and Fields
Section 23 - Integral Domains

Part VI Constructing Rings and Fields:
Section 30 - Homomorphisms and Factor Rings