

MATH 502: ABSTRACT ALGEBRA I
COURSE SYLLABUS
VIRGINIA COMMONWEALTH UNIVERSITY
FALL 2023
SECTION 001
MWF 12:00 noon - 12:50 pm
HARRIS HALL 2110

Instructor:

Brent Cody
Office: Harris Hall 4110
Email: bmcodey@vcu.edu
Personal Website: <http://www.people.vcu.edu/~bmcodey/>

Office hours:

Wednesday 2:30 - 3:30 pm and Friday 1:00 - 2:00 pm
In Harris Hall 4110

Course description:

MATH 502. Abstract Algebra I.
Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 401 with a minimum grade of a C, or permission of instructor. A study of groups, subgroups, quotient groups and homomorphisms, group actions, sylow theorems, direct and semi-direct products, rings, integral domains, and polynomial rings.

Required textbook:

Abstract Algebra, Third Edition, By D. Dummit and R. Foote (ISBN 978-0-471-43334-7)
<https://www.amazon.com/Abstract-Algebra-3rd-David-Dummit/dp/0471433349>

- Ch. 1 - Introduction to Groups
- Ch. 2 - Subgroups
- Ch. 3 - Quotient Groups and Homomorphisms
- Ch. 4 - Group Actions
- Ch. 5 - Direct and Semidirect Products and Abelian Groups
- Ch. 6 - Further Topics in Group Theory (Solvable Groups)
- Ch. 7 - Introduction to Rings
- Ch. 8 - Euclidean Domains, Principal Ideal Domains and Unique Factorization Domains

A major goal of the Math 502 - 602 sequence is to prove the insolvability of the quintic using Galois theory. For more on this, you can check out the [wikipedia page about the Abel-Ruffini Theorem](#).

Course website:

All course materials are on Canvas. To find our course website, log in to Canvas at the link below.
<https://learningsystems.vcu.edu/canvas/>

Student learning outcomes:

Students in this course are expected to learn how to:

- develop creative-thinking skills to apply to mathematical problems and proofs;
- construct mathematical proofs about advanced topics in pure mathematics at a graduate level.

Expectations:

“For a student of mathematics to hear someone talk about mathematics does hardly any more good than for a student of swimming to hear someone talk about swimming. You can’t learn swimming techniques by having someone tell you where to put your arms and legs; and you can’t learn to solve problems by having someone tell you to complete the square or to substitute $\sin u$ for y .” —Paul Halmos

The only way to truly learn mathematics is to be actively engaged with it yourself.

In addition to attending the lectures each week, I expect that you will spend at least 7 hours per week outside of class working on this course.

Homework and quizzes:

Homework problems will be posted on Canvas. Homework will not be collected, but the weekly quiz will consist of a problem or two directly from the homework, or very similar. Although the homework problems are not graded, you are encouraged to get feedback in at least one of the following ways before the quiz:

- come to my office hours to discuss problems,
- send me email about assignments or
- share your work with fellow students.

Quizzes:

There will be a weekly quiz covering material from the previous week (day of week TBD). The quiz will consist of a problem or two directly from the homework, or very similar to homework problems.

Exams:

There will be one midterm exam and one final exam. All are in-class, closed-book exams.

- The Final Exam is on Tuesday, December 19, 12:30 - 3:20pm

Grading:

Grades will be calculated according to the following weights:

Quizzes (lowest two are dropped)	36%
Midterm	32%
Final	32%

Letter grades will be assigned using the standard scale.

Help with course material:

I enjoy talking to students, so please:

- ask questions in class,
- come talk to me in my office and
- send me email.

Grading and makeup policies:

Under normal circumstances I do not make a distinction between excused and unexcused absences. An absence of any type can impact your performance. **I do not give makeup quizzes, nor do I accept late homework.** I will drop two lowest quiz grades. If you miss the final exam for a legitimate reason (i.e. a documented illness or emergency) then I can give you a grade of Incomplete (I) for the course, and you will need to make up the missed exam.

Drop Policy:

Students who do not attend a single class meeting in the first two weeks of class may be dropped from the class.

Important Dates:

Monday, August 28 Last day of add/drop period
Friday, October 27 Last day to **withdraw** with a mark of “W”.
For other important dates visit: <https://academiccalendars.vcu.edu/>.

University links and policies:

- VCU Syllabus Policy Statements on the Provost’s Website
<https://faculty.provost.vcu.edu/faculty-resources/syllabus-statements/>
- Use VCU Libraries to find and access library resources, spaces, technology and services that support and enhance all learning opportunities at the university. (<https://www.library.vcu.edu/>)
- Students should visit <http://go.vcu.edu/syllabus> and review all syllabus statement information. The full university syllabus statement includes information on safety, registration, the VCU Honor Code, student conduct, withdrawal and more.

Student accommodations:

VCU is committed to ensuring that all students maintain equal access to all aspects of the university, including educational experiences through the provision of reasonable accommodations and academic adjustments. In addition to being a requirement under Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, this speaks directly to VCU’s mission of inclusion, equity, and access. To receive accommodations or other disability-related supports, students must register with the Office of Student Accessibility and Educational Opportunity on the Monroe Park Campus (828-2253) or the Division for Academic Success on the MCV campus (828-9782). Students and faculty can visit the [Office of Student Accessibility and Educational Opportunity](#) website and/or the [Division for Academic Success](#) website for additional information. Once students have completed the registration process, they will be provided with a letter of accommodation. They should provide a copy to their instructor(s) and attempt to schedule a meeting to discuss the implementation of accommodations as early in the semester as possible.

Attendance and consequences of poor attendance:

The instructional programs at VCU are based upon a series of class meetings involving lectures, discussions, field experiences, special readings and reporting assignments. Therefore it is important for each student to be in attendance on a regular basis. A student who misses a class session is responsible for completing all material covered or assignments made during the absence.

- Students having attendance problems should contact their instructor to explain the reasons for nonattendance and to discuss the feasibility of continuing in the course. If the student has fallen so far behind that the successful completion of the course is impossible, the student should withdraw from the course before the end of the first 10 weeks of classes (by Oct. 28, 2022).
- If the student continues to miss class and does not officially withdraw from the course, the instructor may withdraw the student for nonattendance with a mark of “W” before the end of the first 10 weeks of classes or may assign an academic grade at the end. Withdrawals are not permitted after the end of the first 10 weeks of classes. For classes that do not conform to the semester calendar, the final withdrawal date occurs when half of the course has been completed.

Managing stress: Students may experience situations or challenges that can interfere with learning and interpersonal functioning including stress, anxiety, depression, alcohol and/or other drug use, concern for a friend or family member, loss, sleep difficulties, feeling hopeless or relationship problems. There are numerous campus resources available to students including [University Counseling Services](#) (804-828-6200 MPC Campus, 804-828-3964 MCV Campus) which provides brief therapy treatment, [University Student Health Services](#) (MPC 804 828-8828, MCV Campus 804 828-9220) and the [Department of Recreation &](#)

[Well-Being](#) (RecWell) (804-828-9355). 24 hour emergency mental health support is available by calling (804) 828-6200 or utilizing the [National Suicide Prevention Lifeline](#) (dial 988).