

# Math 470: Abstract Algebra

## Spring 2023 Schedule

MW 4 pm to 5:15 pm in Academic Hall 201

Text: Contemporary Abstract Algebra 9<sup>th</sup> Edition by Joseph A. Gallian

| January 2023                                    |                       |  |     |                                     |     |            |
|---|-----------------------|--|-----|-------------------------------------|-----|------------|
| ◀ December                                      |                       |  |     |                                     |     | February ▶ |
| Sun   | Mon                   | Tue  | Wed | Thu                                 | Fri | Sat        |
| 1   | 2                     | 3  | 4   | 5                                   | 6   | 7          |
| 8   | 9                     | 10   | 11  | 12                                  | 13  | 14         |
| 15  | 16                    | 17   | 18  | 19                                  | 20  | 21         |
| 22  | 23<br>Semester Starts | 24 First Class:<br>Introduction and Expectations<br><br>What is Abstract Algebra?<br><br>Preliminaries | 25  | 26 Ch. 1: Intro to Groups. Examples | 27  | 28         |
| 29 Homework o<br>Due at 11:59 pm on Gradescope. | 30                    | 31 Ch. 2: Groups. Elementary Properties.   |     |                                     |     |            |

| February 2023                                |     |  |     |  |     |         |
|--|-----|--|-----|--|-----|---------|
| ◀ January                                    |     |  |     |  |     | March ▶ |
| Sun  | Mon | Tue  | Wed | Thu  | Fri | Sat     |
|  |     |  | 1   | 2 Ch. 2: Groups.<br>Elementary Properties.<br><br>Ch. 3: Finite Groups,<br>Subgroups | 3   | 4       |
| 5 Homework 1 Due at 11:59 pm on Gradescope.  | 6   | 7 Ch. 3: Finite Groups, Subgroups<br><br>Ch. 4: Cyclic Groups                  | 8   | 9 Ch. 4: Cyclic Groups<br><br>Ch. 5: Permutation Groups                              | 10  | 11      |
| 12   | 13  | 14 Quiz 1<br>Ch. 5: Permutation Groups   | 15  | 16 Ch. 5: Permutation Groups<br><br>Ch. 6: Isomorphisms/<br>Homomorphisms            | 17  | 18      |
| 19 Homework 2 Due at 11:59 pm on Gradescope. | 20  | 21 Ch. 6: Isomorphisms/<br>Homomorphisms                                       | 22  | 23 Ch. 7: Cosets and Lagrange's Theorem  | 24  | 25      |
| 26   | 27  | 28 Ch. 7: Cosets and Lagrange's Theorem<br><br>Ch. 8: External Direct Products |     |  |     |         |

| <div> <div>◀ February</div> <div>March 2023</div> <div>April ▶</div> </div> |                        |   |                        |   |  |                        |
|---|------------------------|---|------------------------|---|--|------------------------|
| Sun   | Mon                    | Tue   | Wed                    | Thu   | Fri                                      | Sat                    |
|   |                        |   | 1                      | 2 Ch. 8: External Direct Products                                 | 3  | 4                      |
| 5 Homework 3<br>Due at 11:59 pm on Gradescope.                              | 6                      | 7 <b>Quiz 2</b><br>Ch. 9: Normal Subgroups and Factor Groups (Quotient Groups)                    | 8                      | 9 Ch. 9: Normal Subgroups and Factor Groups (Quotient Groups)     | 10                                       | 11                     |
| 12  | 13                     | 14 Ch. 9: Normal Subgroups and Factor Groups (Quotient Groups)<br><br>Ch. 10: Group Homomorphisms | 15                     | 16 Ch. 10: Group Homomorphisms                                    | 17                                       | 18                     |
| 19 <b>Spring Break</b>  | 20 <b>Spring Break</b> | 21 <b>Spring Break</b>  | 22 <b>Spring Break</b> | 23 <b>Spring Break</b>  | 24 <b>Spring Break</b>                   | 25 <b>Spring Break</b> |
| 26 Homework 4<br>Due at 11:59 pm on Gradescope.                             | 27                     | 28 <u>Primary Source Project: Holder's Quotient Group Concept</u>                                 | 29                     | 30 <u>Primary Source Project: Holder's Quotient Group Concept</u> | 31 <b>Cesar Chavez Day-Campus Closed</b> |                        |

| <div> <div>◀ March</div> <div>April 2023</div> <div>May ▶</div> </div> |   |   |     |   |     |     |
|--|---|---|-----|---|-----|-----|
| Sun  | Mon   | Tue   | Wed | Thu   | Fri | Sat |
|  |   |   |     |   |     | 1   |
| 2  | 3   | 4 <b>Quiz 3</b><br>Ch. 11: The Fundamental Theorem of Finite Abelian Groups | 5   | 6 Ch. 12: Introduction to Rings<br><b>Reid Lecture</b><br>6-7pm (Extra credit for attendance) | 7   | 8   |
| 9  | 10 <b>Primary Source Project Due at 11:59 pm on Gradescope.</b> | 11 Ch. 12: Introduction to Rings  | 12  | 13 Ch. 13: Integral Domains   | 14  | 15  |
| 16 Homework 5 Due at 11:59 pm on Gradescope.                           | 17  | 18 Ch. 14: Ideals and Factor Rings (Quotient Rings)                         | 19  | 20 Ch. 14: Ideals and Factor Rings (Quotient Rings)   | 21  | 22  |
| 23 Homework 6 Due at 11:59 pm on Gradescope.                           | 24  | 25 <b>Quiz 4</b><br>Ch. 15: Ring Homomorphisms                              | 26  | 27 Ch. 15: Ring Homomorphisms   | 28  | 29  |
| 30   |   |   |     |   |     |     |

| <div> <div>◀ April</div> <div>May 2023</div> <div>June ▶</div> </div> |     |   |     |   |     |     |
|---|-----|---|-----|---|-----|-----|
| Sun   | Mon | Tue   | Wed | Thu   | Fri | Sat |
|   | 1   | 2 Ch. 16:<br>Polynomial<br>Rings                                | 3   | 4 Ch. 16:<br>Polynomial<br>Rings              | 5   | 6   |
| 7 Homework 7<br>Due at 11:59 pm<br>on Gradescope.                     | 8   | 9 Ch. 17:<br>Factorization of<br>Polynomials                    | 10  | 11 Ch. 17:<br>Factorization of<br>Polynomials | 12  | 13  |
| 14  | 15  | 16<br>Final Exam<br>6:15pm to<br>8:15pm<br>Academic Hall<br>201 | 17  | 18  | 19  | 20  |
| 21  | 22  | 23  | 24  | 25  | 26  | 27  |
| 28  | 29  | 30  | 31  |   |     |     |