## Math 522: Number Theory (Fall 2022)
## Lecture Schedule

**Instructor:** Christopher O'Neill
**E-mail:** cdoneill@sdsu.edu

Below is a list of the topics we intend to cover, along with a rough schedule. Actual schedule is subject to change without notice. Last updated August 28, 2022.

| Week | Topic | Chapters |
|---:|---|---|
| 8/22 – 8/26 | Overview of Syllabus | |
| | Review of Proofwriting | |
| | Introduction to Number Theory | 1-1 |
| 8/29 – 9/2 | The Division Algorithm | 2-1 |
| | Greatest Common Divisors | 2-2 |
| 9/5 | *Labor Day: No Classes* | |
| 9/6 – 9/9 | The Euclidean Algorithm | 2-2 |
| 9/12 – 9/16 | Prime Factorization | 2-4 |
| 9/19 – 9/23 | Modular Arithmetic (Week 1) | 4-1, 4-2 |
| *9/26 – 9/30 | Modular Arithmetic (Week 2) | 3-2, 3-3, 5-2 |
| *10/3 – 10/7 | Chinese Remainder Theorem | 5-1, 5-3 |
| 10/10 – 10/14 | Arithmetic Functions | 6-1, 6-2, 6-3 |
| 10/17 – 10/21 | The Möbius Function | 6-1, 6-3, 6-4 |
| *10/24 – 10/28 | Primitive Roots | 7-1, 7-2 |
| *10/31 – 11/4 | Locating Large Primes | 8-1, 8-2, 8-3 |
| 11/7 – 11/10 | Catch-up Week | |
| 11/11 | *Veteran's Day: No Classes* | |
| 11/14 – 11/18 | Quadratic Residues | 9-1, 9-2 |
| 11/21 – 11/23 | Cryptography | |
| 11/24 – 11/25 | *Thanksgiving Break: No Classes* | |
| *11/28 – 12/2 | Cyclotomic Polynomials (Week 1) | |
| *12/5 – 12/9 | Cyclotomic Polynomials (Week 2) | |
| 12/12 – 12/12 | Review for Final Exam | |