

Number Theory

MATH 102 – Spring 2018

👤 Dr. Joshua Wiscons
📍 Brighton (BRH) 144
🗨️ MW 12:00PM–1:00PM; F 11AM–12PM
And also **by appointment**
✉️ joshua.wiscons@csus.edu
📄 webpages.csus.edu/wiscons/teaching/

Get Connected	Resources
Visit Me [Brighton 144]	Me & Your Classmates
Visit the Math Lab [Brighton 118]	<i>Stressed?</i> Counseling [WELL 2 nd Floor]
Explorer Our Community! Don't know where to start? Check out our Multi-Cultural Center	<i>Food?</i> CSUS Pantry [Yosemite 163]
	<i>Could benefit from accommodations?</i> Talk with me or visit the SSWD office [Lassen 1008]

⚙️ **Course Goals** The overarching goals of this course are to (1) increase the students' capacity for fact-based reasoning, (2) develop the necessary competency with the concepts and mechanics basic number theory for further study in mathematics and applications to other fields, (3) improve the students' written and oral communication of mathematics, and (4) develop the skills and mindset for solving problems in a team.

☰ Learning Objectives

- Understand basic properties of integers including divisibility and unique factorization
- Be able to solve Diophantine equations
- Understand congruences, congruence arithmetic, and be able to solve linear congruence equations
- Know basic theorems in number theory, e.g. Fermat's, Wilson's, and Euler's Theorems.
- Understand number theoretic functions such as the number of divisors of an integer
- Know what a primitive root is and be able to find primitive roots

☑️ **Prerequisites** Grade of C- or better in Math 31 (Calculus 2)

📖 **Book** *Elementary Number Theory*, Second Edition (Dover Books on Mathematics); by Underwood Dudley.

🗨️ **Class Etiquette** Diversity and individual differences are respected, appreciated, and recognized as a source of strength. Students in this class are encouraged and expected to *speak up* and participate during class and to *step back* and include others in the conversation. Every member of this class must show respect for every other member of this class. Attitudes or actions destructive to the sense of community that we strive to create are not welcome and will not be tolerated.

Students are also expected to minimize distracting behaviors. Every attempt should be made to arrive to class on time. If you must arrive late or leave early, please do not disrupt class. Please mute your cell phone. Everyone is expected to be paying attention and engaging in class discussions. If your cell phone (or other device) is interfering with this, I will ask you to put it away.

Course Components

Homework. These assignments (usually mixture of computations and proofs) are to be turned in on their due date at the beginning of class. You are *allowed and encouraged* to work together on homework, but you are expected to **write up your solutions on your own**. Solutions must be written clearly, must include all supporting work, and must be professional in appearance.

Participation. This component measures your level of engagement with your group and in class-wide discussions. *Repeated absences will impact this portion of your grade.*

Exams. There are 2 midterm exams *tentatively* scheduled for Feb. 28 and Apr. 18. There is also a Final Exam scheduled for Monday, May 14 from 12:45 PM–2:45 PM

Grade Composition

Homework	25%
In-Class Participation	10%
Midterm Exams	40% (20% × 2)
Final	25%

In general, letter-grade cutoffs will be standard: A 100-90%, B 89-80%, C 79-70%, D 69-60%, F 59-0%.

Disabilities Any student needing academic adjustments or accommodations should speak with me privately during the first two weeks of classes. Please provide me with a copy of your accommodation letter from the [Services to Students with Disabilities \(SSWD\) office](#). All discussions will remain confidential.

Cheating Cheating will result in disciplinary action and will be reported to the [Office of Student Conduct](#). If you are unsure what constitutes cheating, please speak with me and review Sacramento State's *Academic Honesty Policy and Procedures* document here: www.csus.edu/umannual/student/stu-0100.htm.