Introduction to Contemporary Mathematics
A&S 100
Tentative List of Topics

The following topics were selected from the table of contents of the text *Mathematics Beyond the Numbers*, by Gilbert and Hatcher

- **Voting Methods**
  - Plurality and Runoff Methods
  - Borda’s Method: A Scoring System
  - Head-to-Head Comparisons
  - Approval Voting
  - The Search for an Ideal Voting System

- **Apportionment: Sharing What Cannot be Divided Arbitrarily**
  - Quota Methods
  - Early Divisor Methods
  - Apportionment in Today’s House of Representatives
  - The Search for an Ideal Apportionment Method

- **Paths and Networks**
  - Eulerian Paths and Circuits on Graphs
  - The Traveling Salesman Problem
  - Efficient Networking: Minimal Spanning Trees

- **Tilings and Polyhedra**
  - Polygons
  - Tilings
  - Polyhedra

- **Number Theory**
  - Divisibility and Primes
- Modular Arithmetic
- Divisibility Tests
- Check Digits
- Tournament Scheduling
- Introduction to Cryptology
- Advanced Encryption Methods

- Game Theory with an Introduction to Linear Programming
  - Alternate Move Games
  - Simultaneous Move Games and Dominance
  - Zero-Sum Games
  - Simultaneous Move Games and Mixed Strategies
  - Mixed Strategies and Linear Programming
  - Simultaneous Move Games with Communication
Potential Texts

- COMAP, For All Practical Purposes.
- Gilbert and Hatcher, Mathematics Beyond the Numbers.
- Pirnot, Mathematics All Around.
- Tannenbaum, Excursions in Modern Mathematics.