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SYLLABUS FOR MA505. HISTORY OF MATHEMATICS

This is really a course in mathematics through its history, a course that presents a unified view of undergraduate mathematics that incorporates the important historical developments of the subject. It is aimed at students who already have a considerable background in mathematics, including two years of calculus and a year of modern mathematics (linear algebra, discrete mathematics, abstract algebra), and who are capable of following and presenting the logic of arguments and proofs. Mathematical developments and arguments are presented with a historical emphasis but also anachronistically in modern notation and interpretations.

Text: Mathematics and its History by John Stillwell, Springer, Third Edition 2010.

Exercises:

Chapter 1. The Theorem of Pythagoras. 1.2: 3,4. 1.3: 1-4. 1.4: 1,2. 1.6: 1,2.
Chapter 2. The Deductive Method. 2.1: 1,2. 2.3: 1-4. 2.4: 2-4.
Chapter 3. Greek Number Theory. 3.2: 1-5. 3.3: 1-5. 3.4: 3,4.
Chapter 4. Infinity in Greek Mathematics. 4.2: 2-5. 4.3: 4-6. 4.4:1-3.
Chapter 5. Number Theory in Asia. 5.2: 1,2. 5.3: 1,2. 5.4: 2-4. 5.6: 1-4.
Chapter 6. Polynomial Equations. 6.2: 1-3. 6.3: 1-5. 6.4. 1-5. 6.5: 1-3. 6.7: 1-3.
Chapter 7. Analytic Geometry. 7.2: 1-4. 7.3: 1-3. 7.4: 1,2. 7.5: 1,2.
Chapter 8. Projective Geometry. 8.4: 2-4.
Chapter 9. Calculus. 9.2: 1,2,4,5. 9.3: 3,4. 9.5: 1-4. 9.6: 1-3.
Chapter 10. Infinite Series. 10.1: 1-5. 10.2: 1-3. 10.4: 1-2. 10.6: 1-3. 10.7: 1,4,5,6.
Chapter 11: Number Theory Revival. 11.1: 1,3. 11.2: 1-4. 11.4: 1,2,4.
Chapter 12: Elliptic Functions. 12.2: 2. 12.3: 2,3. 12.4: 1-5. 12.5: 1,2.
Chapter 13: Mechanics. 13.1: 1-3. 13.6: 1-3
Chapter 14: Complex Numbers in Algebra. 14.3: 2-5. 14.5: 2-4. 14.6: 1,2. 14.7: 1-3.

Grading and Procedures: The course is broken down into 8 units as follows: Exercises, 4; Final, 2; Midterm, 1; Attendance, 1. The percentage-wise worst unit is dropped, and the rest are given equal weight in calculating the grade. Exercises will be periodically assigned, collected on the date due, and returned corrected; they can be recycled once for full credit up to the collection date of the succeeding assignment. Attendance is calculated according to your signing an attendance sheet circulated at each session.

Incompletes and Withdrawals: The incomplete grade *I* is given only in very exceptional cases to students who have maintained a good record through much of the course and suddenly find themselves in very difficult circumstances. Others who find early on that they are not keeping up are urged to drop or withdraw from the course.

Please be aware of the last date to process a Withdrawal. Currently, it seems to be in the 8th week of the semester.