CO 480 Week 5 Learning Goals

By the end of this week, students should be able to...

- Name the different political regimes in the second half of the 19th century and the events that led to the passage from one to the other.

- Explain the role of Louis-Napoleon Bonaparte.

- Explain how the political climate has influenced the French education system and how the state of the French educational system has influenced the course of the political climate.

- Explain who is Pasteur and his role in the restitution of the French educational system.

- Describe the life of Lucas.

- Explain the relationship between Pasteur and Lucas.

- Name and describe at least one of Lucas' important contributions to mathematics

- Explain the two types of Tower of Hanoi solutions.

- Explain the construction of the H_k^n graph and solve problems using it (for any regular position)

- Solve problems related to Mersenne prime numbers.

- Define $\sigma(n)$ and use it to solve problems related to perfect numbers.

- Manipulate Lucas functions to prove identities using them.

- Use the chessboard method (and binary notation) to perform calculations.

- Use the different versions of the Lucas tests (including the Lucas-Lehmer test) to prove the primality of numbers.