WRITING IN THE MAJOR ASSIGNMENT

Math 110

Communicating clearly is essential in life, and writing on technical topics well can be challenging. This assignment is a chance for you to practice this essential skill. It will be worth 15% of your final grade.

You have a choice of the following two topics.

1. Present a readable and complete discussion of the Data Encryption Standard DES. Your essay should include some of the mechanics of actually encrypting and decrypting messages with DES. You can use the book as a reference, but your essay should be self contained. You should aim your explanation to someone who knows a little math and computer science, but knows nothing of DES, not to someone else who has the same textbook. You should start, for example, by discussing what DES is. On the other hand you do not need to define terms like “ciphertext”, “permutation”, or “bits”.

2. Discuss balancing the need by individuals and businesses for the most effective encryption possible with the government’s need to decode messages that might endanger national security. Your essay should include some consideration of technical matters, such as what key lengths are (or should be) allowed, etc. This subject has a rich history over the past few decades, which you should also discuss in your essay.

Your essay should be 4–7 pages long. It should be well organized, nicely presented, and easy to read. LaTeX is recommended but not required. When we grade your assignment we will be looking for content, coherence, and clarity.

• Content: You should have something substantive to say. Carefully chosen details should be included.
• Coherent: The essay should “hang together” and be well-organized. The essay should be orderly, logical, and aesthetically consistent.
• Clarity: You should write precisely and explicitly, and the meaning should be easily understood.

Your assignment is due by Friday, June 4, at 5pm. No late essays will be accepted. However, you may hand in drafts at any point before that, and we will read them and give you feedback. You should allow us 1 week to return a draft.