The instructions below cover your preparation for Weeks 1-3: class meeting days 2, 3, 4, and 5

## PRE-CLASS for Day 2 (Do this before 5 Oct)

Goal: Understand these logic concepts: quantifiers, nested quantifiers, and the rules of inference

1. Read chapter 1.4-1.6. A good habit is to practice by *working the example problems on your own* before looking at the solutions, then checking to see if your approach is correct – I call this ***Interactive*** Reading  
   *Note – if you are still struggling with the basics of logic we reviewed in CSCE 031, you should read the first three sections of chapter 1, and you may want to visit Khan Academy and try some practice problems in logic*
2. Quantifiers: Go to <http://www.cs.odu.edu/~toida/nerzic/level-a/logic/pred_logic/quantification/quantification.html> and  
   work the practice problems there
3. Review the rules of inference and logic proofs and study the examples at: <http://sites.millersville.edu/bikenaga/math-proof/rules-of-inference/rules-of-inference.html>. This site also shows how to format your logic proofs nicely
4. Videos:
   * Logic & Language - quantifiers & bound variables (Logic 3 of 5) (NativLang, 8 min) <http://www.youtube.com/watch?v=6UDhj7Y52xw>
   * Logical Quantifiers (MSUphilosophyPage 5 min) <http://www.youtube.com/watch?v=nJz7TbTdKD8>
   * Nested Quantifiers - EECS 203 - Project 1 (JungUndSorglos 10 min) <http://www.youtube.com/watch?v=4St8L2s__Ko>
   * Logic: Argument Forms / Rules of Inference (MrDLPmath 15 min) <http://www.youtube.com/watch?v=eKhJeWSgBPk>

## Reminder: There is no class meeting on 10 Oct 16 because it is a federal holiday.

## PRE-CLASS for Day 3 (Do this before 12 Oct):

Goal: Understand how to perform and review logic proofs: Direct Proof, Proof by Contradiction, Proof by contraposition, Exhaustive Proof by Cases, Existence Proofs, and Uniqueness Proofs

1. Review any concepts that were confusing from the previous class
2. *Interactively* read chapter 1.7-1.8 by trying the example proofs before looking at the solutions.
3. *Interactively* read the Proof by Contradiction page at: <http://zimmer.csufresno.edu/~larryc/proofs/proofs.contradict.html>
4. Read the Proof by Contraposition website at <http://www.personal.kent.edu/~rmuhamma/Philosophy/Logic/ProofTheory/Proof_by_Contrposition.htm>, then interactively read & work through the examples at <http://www.personal.kent.edu/~rmuhamma/Philosophy/Logic/ProofTheory/Proof_by_ContrpositionExamples.htm>
5. Interactively read the website on Existence Proofs: <http://sites.millersville.edu/bikenaga/math-proof/existence-proofs/existence-proofs.html>
6. Interactively read the website on Existence and Uniqueness Proofs: <http://faculty.ycp.edu/~dbabcock/PastCourses/mat235/lecture/lecture15.html>
7. For further reinforcement watch these videos (first introduced in CSCE 031):

* Proof by contraposition (Screencast 3.2.1 & 3.2.2) (GVSU math, 7+7 min) <http://www.youtube.com/watch?v=hAFpc9abNFc> (I couldn’t play this using IE on campus)  
  <http://www.youtube.com/watch?v=3ORYou8dc0s>
* Proof by contradiction (Screencast 3.3.1) (GVSU math, 7 min) <http://www.youtube.com/watch?v=YUL6HMJmTM4>

## PRE-CLASS for Day 4 (Do this before 17 Oct)

Goal: Understand functions, sequences, & cardinality

1. Review any concepts that were confusing from the previous class.
2. Interactively Read chapter 2.3-2.5.   
   *Note – if you are still struggling with the basics of sets & set operations we reviewed in CSCE 031, you should re‑read the first two sections of chapter 2*
3. For more on on-to-one and onto functions: Visit regentsprep.org page <http://www.regentsprep.org/regents/math/algtrig/ATP5/OntoFunctions.htm>
4. For more on sequences and summation notation: visit the richland.edu page <https://people.richland.edu/james/lecture/m116/sequences/sequences.html>
5. [This resource does not appear to be available any longer.] For more on Cardinality of sets, counting, finite and infinite sets: visit the utexas.edu page:  
   <http://www.cs.utexas.edu/~eberlein/cs336/cardinality.html>   
   and the onlinemathlearning.com page (including videos):  
   <http://www.onlinemathlearning.com/finite-sets.html>
6. For more on the Cantor Diagonal proof of uncountable infinite sets: visit Wikipedia:  
   <http://en.wikipedia.org/wiki/Cantor%27s_first_uncountability_proof>   
   <http://en.wikipedia.org/wiki/Cantor's_diagonal_argument>

## PRE-CLASS for Day 5 (Do this before 19 Oct):

Goal: Understand congruences and their applications (Chapter 4)

1. Review any concepts that were confusing from the previous class
2. Interactively read chapter 4.4-4.5 by working the examples before looking at the solutions.  
   *Note – if you are still struggling with the basics number theory we reviewed in CSCE 031, you should read the first three sections of chapter 4*
3. Solving Linear Congruences: visit the MTU website at: <http://www.math.mtu.edu/mathlab/COURSES/holt/dnt/lincong.html>   
   work your way through the web page sections 5.1-5.4 and practice solving problems  
   Note: this is running old java and may only work on AFIT machines for a while (students reported problems)
4. For more on the Chinese Remainder Theorem (solving a system of linear congruences), visit:  
   <http://www.cut-the-knot.org/blue/chinese.shtml>  
   <http://www.youtube.com/watch?v=3PkxN_r9up8>

**Note: Class Day 6 (Monday 24 Oct 16) is the day of Exam 1, which will cover the content from Days 1 through 4 and Chapters 1 & 2 of the textbook.**