**Exam Four Topic List to Study – EXAM DATE 🡪 FRIDAY, 13 MAY 2016**

**I. Bacteria**

 Material to use: Notes from class lecture

 Bacterial grab bag assignment

Topics: Bacteria structure

 What causes them to be pathogenic?

 How do they differ from eukaryote cells? Organelles? Reproduction?

**II. Mitosis & Meiosis**

 Material to use: Notes from class lecture

Mitosis & meiosis worksheets (dated 4/20 & 4/21, respectively)

 Onion root tip lab (online – dated 4/19)

 How chromosomes replicate and move during mitosis & meiosis

 Mitosis in Ascaris & Onion Root vocabulary list (4/27)

 Mitosis Cell Cycle Review/Practice (4/28)

 Eukaryotic cell & cancer worksheets (Mr. F will hand back)

 Topics: Cell cycle circular diagram

 Major events in each phase

 Identify a cell in each phase

 Animal vs. Plant cell mitosis differences

 Cellular hardware needed to make the chromosomes properly separate

III. Eukaryotic Cells & Cancer

 Material to use: HHMI Biointeractive activity (“the eukaryotic cell cycle and cancer”)

 Topics: Cell cycle checkpoints and their purposes

 Proto-oncogene vs. oncogene function

 Tumor suppressor gene function

 Function of the G0 phase

 What apoptosis is and why it’s important?

**IV. DNA**

 Material to use: DNA model challenge packet

 Notes from class lecture

 PowerPoint on the discovery of DNA and the scientists involved

 Computer based activities from 4 May

 Topics: Structure

 3 bonds present

 Chargaff’s rules and data

 Scientists’ work toward the discovery of DNA’s structure

Frederick Griffith

 Avery, McCarty & McLeod

 Alfred Hershey & Martha Chase

 Erwin Chargaff

 Maurice Wilkins & Rosalind Franklin

 James Watson & Francis Crick