**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