

## STUDY GUIDE – CHAPTERS 11-13

### Multiple Choice Topics (77 points)

- ligands/receptors/lock and key fit
- G protein mechanism
- receptor tyrosine kinase mechanism
- steroid receptor mechanism
- protein kinase mechanism
- $\text{Ca}^{2+}$ /phospholipase C/ $\text{IP}_3$  mechanism
- ATP/cAMP/adenylyl cyclase mechanism
- effects of cell communication
- transcription factors
- signal transduction
- apoptosis
- chromatid/chromosome/chromatin
- mitosis vs. binary fission
- steps in mitosis
- cytokinesis in plant vs. animal cells
- microtubules in mitosis/meiosis
- microfilaments in mitosis/meiosis
- cell cycle phases
- kinetochores/centromere
- CDK/cyclin/MPF
- density-dependent inhibition
- cancer cells
- steps in meiosis
- meiosis I vs. meiosis II
- haploid/diploid/ $n=23/2n=46$
- somatic cells/gametes
- homologous chromosomes
- allele vs. gene
- chiasmata/crossing-over
- independent assortment
- sexual/asexual reproduction
- autosome/sex chromosome
- yeast cells shmooing

### Free Response Topics (29 points)

- signal transduction pathway
- cell communication
- mitosis
- meiosis
- cell cycle
- experimental design
- water potential
- osmosis lab
- evolution/natural selection

