**BIL 257 - Honors Readings in Biology – CMB**  
**Anaerobic – Aerobic Metabolism & Regulation**  

**Topic Examples**  
1) Characterization of any metabolic enzyme  
2) Lactic Acid metabolism  
3) Fuel utilization during aerobic/anaerobic metabolism  
4) Fat utilization and aerobic metabolism  
5) Metabolic and/or Exercise Induced Asthma  
6) Effect of Sleep Deprivation on metabolic performance and/or metabolism  
7) Metabolic disorders: disease and metabolism  
8) Measurement of metabolism – techniques & protocols  
9) Endurance Exercise & Pathological Processes  
10) Immunoglobulin Levels in metabolism  
11) Training methodologies: anaerobiosis vs aerobiosis  
12) Effect of Caffeine on Lactate Responses in Metabolism  
13) Eating Disorders and metabolic influences  
14) Chronic Overloading during metabolic activity  
15) Influence of Preferred Relaxing Music on State Anxiety & metabolism  
16) Muscle Glycogen Synthesis after Exercise  
17) Metabolic changes due to myocardial infarction  
18) Intensive Training in Young Athletes – metabolic effects  
19) Physiology & Biochemical Changes during stress (triathlons)  
20) Stress and Performance in metabolic activity  
21) A/B Types & Psychophysiological Responses to Exercise  
22) Aerobic Dance and metabolism  
23) Physical Activity Counseling - Preventive Intervention  
24) Plasma Volume Changes during exercise  
25) Ethnic differences in metabolism  
26) Skeletal Muscle Characteristics & differences in metabolic exercise  
27) Lactate Level as an Index of Exercise Performance  
28) Mitochondrial DNA Sequence Polymorphisms  
29) VO$_{2\text{max}}$ & metabolism  
30) Additive Effects of Caffeine & Cold Water during Submax leg Exercise  
31) Glucose Induced Exertional Fatigue in Muscle P-fructokinase Deficiency  
32) Effect of Yoga Training on Serum LDH Levels  
33) Muscle structure and aerobic vs. anaerobic metabolism  
34) Role of Metabolism in Aging  
35) Regulatory mechanisms in metabolism
**Possible TOPIC AREAS for Presentations in Anaerobic & aerobic metabolism**

- Regulation of metabolism: key metabolic enzymes (PFK, CS, PDH, KGDH)
- Differences between anaerobiosis & aerobiosis
- Anaerobic thresholds/lactate testing
- Training methodologies: anaerobic vs. aerobic
  - interval, hypoxic, aerobic, endurance, tapers
  - isometric, isotonic, isokinetic
  - high altitude training & blood doping
- Diet and effects on energy production and metabolism:
  - carbohydrate loading
  - fluid replacements
  - kidney function during exercise
- Your own personal burning issue in metabolism
  - a metabolic disorder in a personal acquaintance