

MAE 124/ESYS 103

Discussion: Week 5

1. Midterm format: (see previous years' examples on web)
 - short answer definitions (25 points)
 - short answer essay (25 points)
 - longer essay (50 points)
 - grading criteria: handwriting must be legible. spelling and grammar will influence our perceptions. essays do not need to be long and should be carefully thought out and should address all issues raised in exam question.
 - blue books (or paper) will be provided
2. Exercise: Discussion of 2004 midterm essay exam (see separate handout). [Note: Students who miss discussion, should provide a detailed outline of an essay exam response.]
3. Issues for discussion:
 - important areas of environmental impact: (CO₂, air quality, CFCs, natural resources to build and operate)
 - regulatory risks: (Kyoto Protocol enforcement; improved CAFE standards; gas rationing or higher gas taxes/prices)
 - potential improvements:
 1. use life-cycle assessment (identify objectives of LCA; gather data for all life cycle stages; categorize data (relative to impacts and risks); evaluate)
 2. objectives: address environmental impact and likely environmental regulation for a car
 3. for car: life cycle stages are construction, use, disassembly/junk yard
 4. gather data for energy use, materials use, pollution and waste at each stage
 5. sort energy, materials into measures of CO₂ release, air quality, natural resources, pollution, Kyoto Protocol risks
 6. likely improvements should emphasize improved fuel efficiency, light-weight materials; easy of disassembly and repair; minimal air conditioning requirements;