

# **Professional Ethics: What's the WORST That Could Happen?**

## **Issues in Ethics**

- **Questions to Ask:**
  - What's the worst that could happen?
  - What's the probability that it *will* happen?
  - Can I live with myself if it *does* happen?
  
- **Situational Constraints:**
  - Time
  - Level of your authority
  - Degree of responsibility
  - Future goals
  - Environmental constraints and context
  
- **Guiding Principles:**
  - Know thyself!
  - Know the problem!
  - More information is always better!
  - CYA!
  - Don't lose sight of the big picture!

# Frameworks for Decision Making

## *The Design Model*<sup>1</sup>

- Steps:
  - 1) Define problem and specify objectives
  - 2) Generate alternatives
  - 3) Analyze/evaluate alternatives
  - 4) Select an alternative based on analysis
- Issues:
  - Should know how certain outcomes affect your objectives
  - More time allows for more detailed analysis/information gathering
  - Know the problem!

## *The “Olympian” Model*<sup>2</sup>

- Steps:
  - 1) Generate the set of all possible choices
  - 2) Determine all possible outcomes and associated probabilities for each choice
  - 3) Set up a decision tree for the outcomes, i.e., follow each choice through to its ultimate outcome
  - 4) Weight the attractiveness of each outcome
  - 5) Determine the attractiveness of each initial choice using:

$$\text{Attractiveness of choice} = \sum (\text{probability})_i \times (\text{attractiveness})_i$$

where  $i$  = number of possible outcomes

- Benefits:
  - Analytical approach helps to quantify the uncertain
  - Probabilities allow for uncertainty
  - Can deal with unacceptable outcomes, e.g., loss of human life
- Problems:
  - Don't always know all possible outcomes
  - Difficult to estimate probability of all outcomes

---

<sup>1</sup>Engineering Synthesis and Design Curriculum, Civil and Environmental Engineering Department, Carnegie Mellon University.

<sup>2</sup>Simon, H.A. (1983). “Alternative visions of rationality,” in *Reason in human affairs*, pp. 7-35, Stanford University Press, Stanford, CA.

*The Critical Method (Cost/Benefit Analysis)*<sup>3</sup>

- Steps:
  - Formulate the problem
  - Propose a hypothetical solution
  - Explain what means and consequences will be involved in accepting the hypothesis
  - State the reasons for accepting the hypothesis and those for rejecting it
  - Criticize the reasons
  - Decide by weighing the importance and uncertainty of the reasons.
  
- Benefits:
  - Helps focus on most probable solution
  - Less effort than considering *all* possible solutions
  
- Problems:
  - May cause other potential solutions to be overlooked.

---

<sup>3</sup> McLaren, R. (1989). *Solving Moral Problems: A Strategy for Practical Inquiry*. Mayfield Publishing.