ESD.864 Term Projects

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- Goal
  - Application of & practice in doing science for policy
  - Using some of the theoretical frameworks and insights from class
- Content
  - Topics drawn from colleagues
  - Analysis/modeling and policy question(s)

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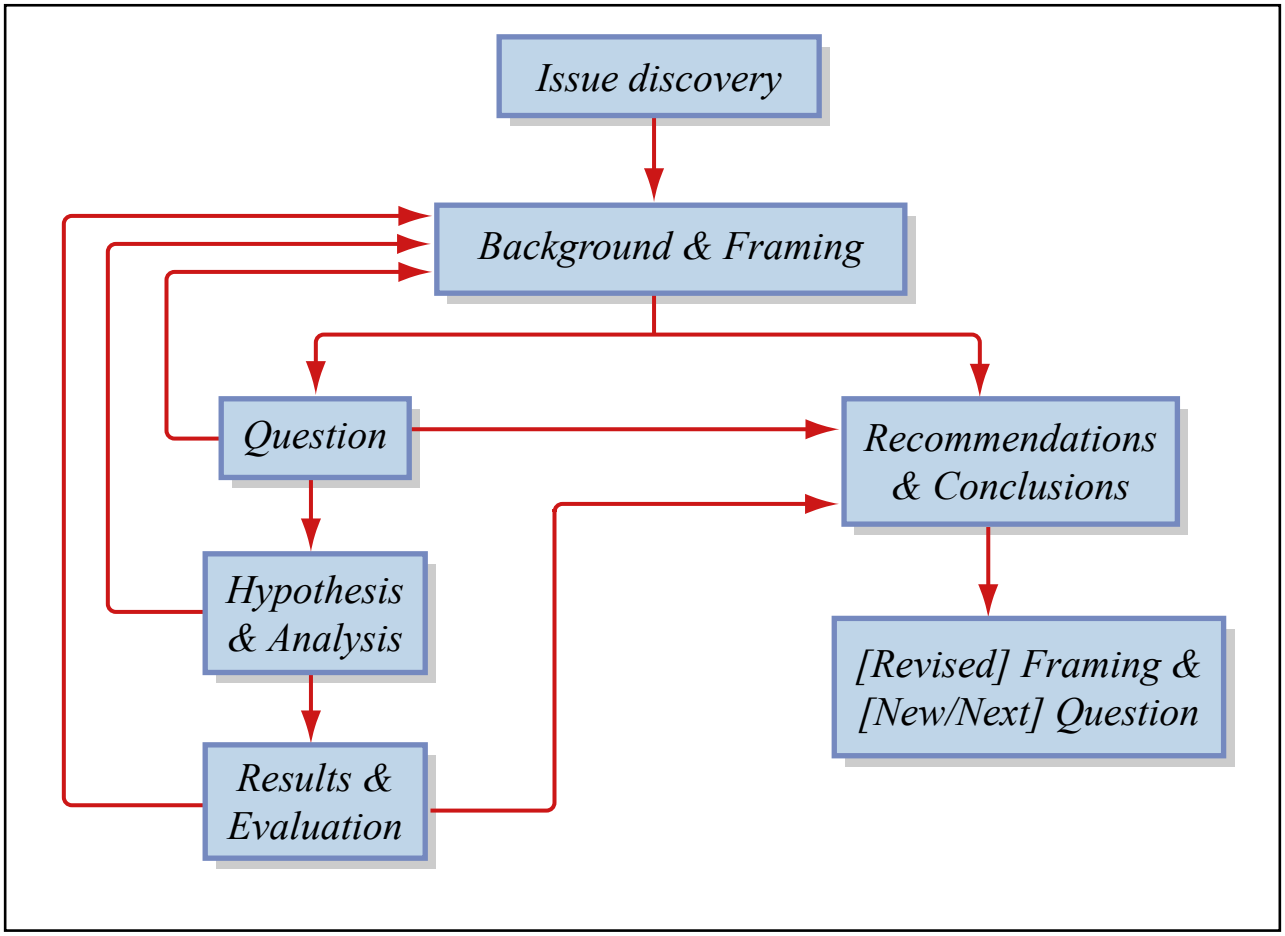
- Approach: styled on a research model
  - Meet with client to discuss topic
  - Preliminary assessment and problem framing
  - Hypothesis, Analysis, and Refinement
  - Findings and Recommendations



Timetables

- Formal Due Dates
  - Session 16
    - In-class discussions of projects
    - Process memo due
  - Session 25 – Final report due
  - Session 25 & 26 – In class presentations
- Informal Monitoring
  - A team leader will liaise with Frank
  - Point person for inquiries as to progress, status, etc.

Project: Battery Performance and Vehicle Production Costs

Topic Summary:
The recent ARPA-E proposals for battery technology insisted that battery technologies meet USABC target goals. However, there are battery technology options that could meet some of these goals, and are much cheaper --- meaning that it can be cheaper to devise heavy batteries and lighten the car than it is to develop lightweight batteries.

Project: EU Biofuels Emissions LCA Allocation

Topic Statement:
EU regulations have been set that assert that CO_2 burdens of biofuels derived from organic sources having multiple uses should be allocated according to energy content, rather than economic values. For certain biofuels (e.g., soybeans), this policy limits the use of high energy byproducts in fuel production. What could be done to revise/refine this policy and how should the case be made for a different allocation mechanism?

Project: STEM Education Motivators

Project Statement: The goal of this research is to gain insights into what motivates students to study aerospace engineering, how their experiences influence their career choice, and what their perspectives are on a future career in or outside of the aerospace industry. These insights can be used to identify reasons that students might not stay in the aerospace field, and to help formulate practices to hire and retain engineers.

Project: Internet Traffic Congestion (2 teams)

Topic Statement: Dave Clark and his colleagues have multiple large datasets measuring network transmission rates and latency (among other performance measures), and they are seeking to understand what these data tell us about the state and actual topology of the internet, with a view toward better understanding of the state of broadband in the US. A number of interested parties are seeking to use these data, in a reduced form, to set broadband build out goals.

Project: Renewable Energy, Wind Power

Topic statement:
The US Dept of Energy has recently released a report on the National Offshore Wind Strategy for the US – part of a program “to spur the rapid and responsible development of offshore wind energy.”

- What data and techno-economic analyses underpin this report?
- What foundation of information is needed to assist the development of this industry and its related ‘technologies?’

Project: EV Policy

Topic Statement:
While electric vehicles are routinely cited as a green transportation option, it is important to recognize that not only do electric vehicles come in different forms, but that their relative environmental benefit is a strong function of usage patterns and location. How much, and in what way would this information influence policy for electric vehicle fleet roll-out?

Project: Water Policy

- Topic: Water modeling, availability, planning, uncertainty, and climate policy

Project: Northeast Air Quality

- Topic Statement: Regional Air Quality Modeling for Northeast U.S.

ESD.864 Modeling and Assessment for Policy
Spring 2011