Modeling and Assessment for Policy

ESD.864
Noelle Selin

February 5, 2013

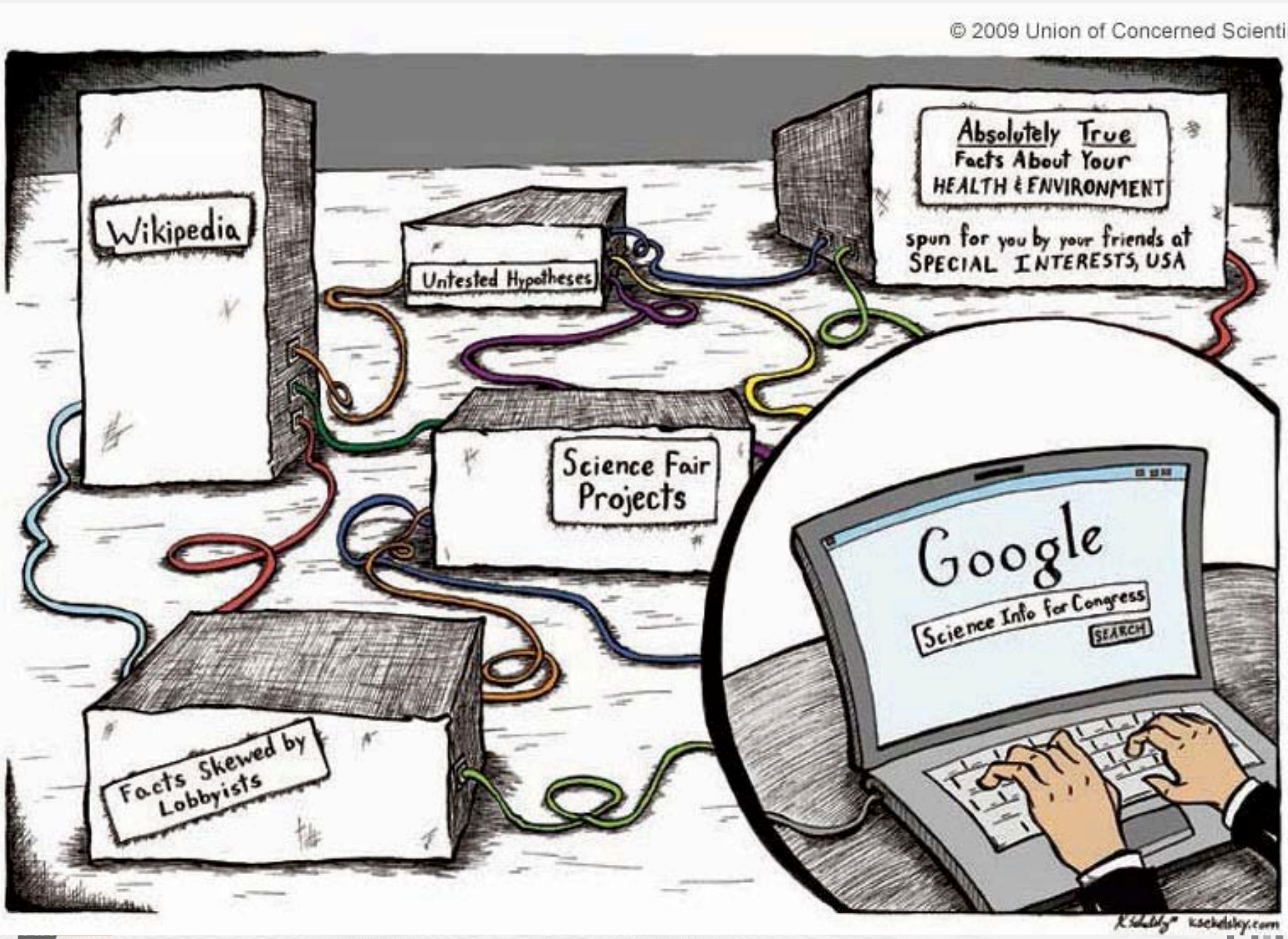
MIT ESD
Massachusetts Institute of Technology
Engineering Systems Division

Today's Class

- Who are we?
- What's the problem?
- Learning objectives, assignments
- Who are you?
- Questions and next steps

Introductions: Who are we?

- Teaching Staff:
  - Prof. Noelle Selin



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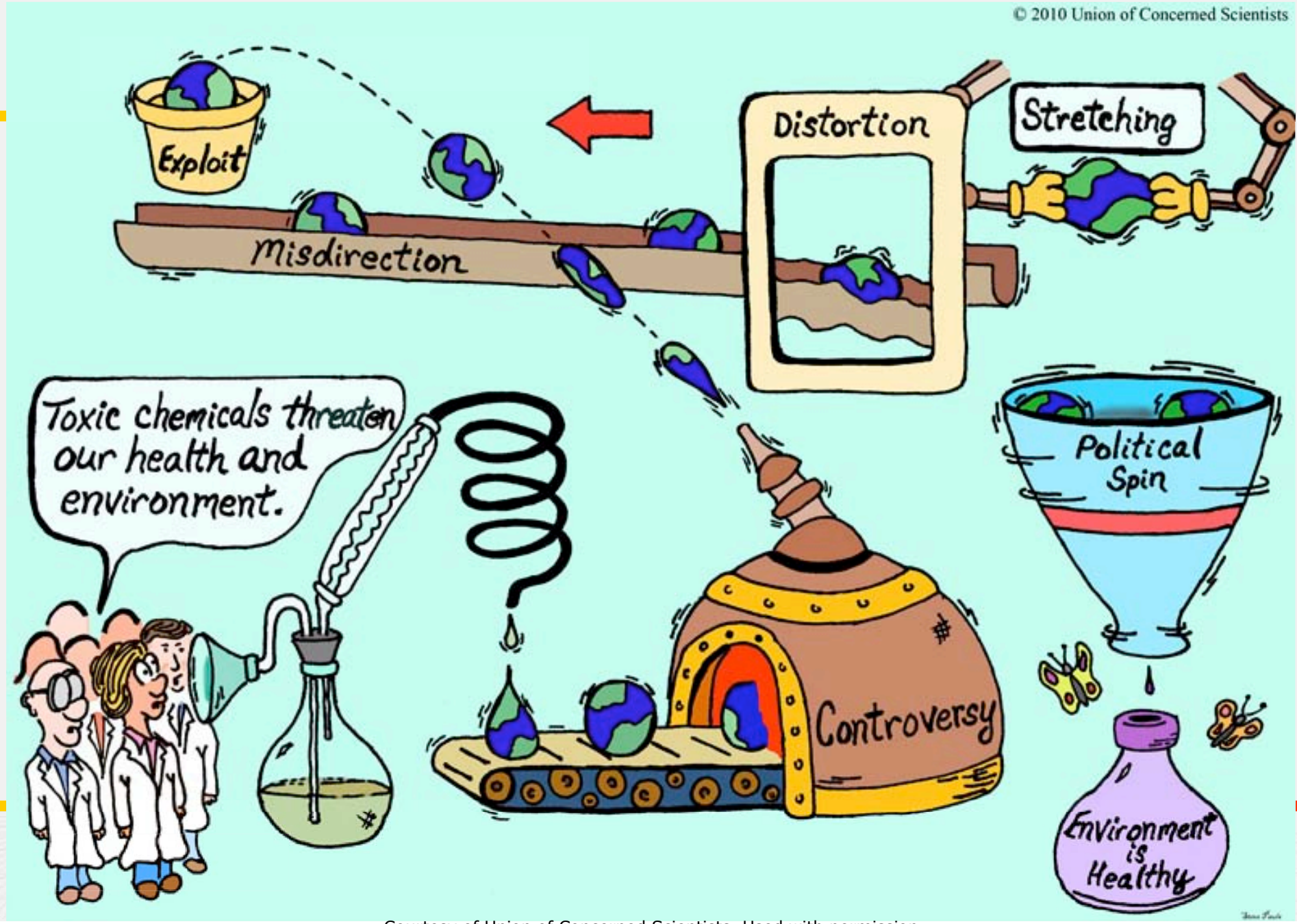

Your results are clear and irrefutable, Dr. Gardner.
Obviously, our agency can't approve this.

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Introducing ESD.864

- What is technically-focused policy analysis?
- What are the tools we use?
- Who performs it?
- Does it matter?

Syllabus Overview: Objectives

- By May, you should be able to:
  - Understand and apply tools and techniques used for technically-focused policy analysis
  - Identify best practices and limitations in using quantitative models for policy
  - Evaluate the effectiveness of scientific and technical advice in policy-making processes
  - Describe and analyze strategies to manage scientific and technical advice processes
  - Communicate technical results to policy audiences

Topics/Techniques

- Verification and validation
- Assessment design and evaluation
- Benefit-cost analysis
- Systems modeling
- Integrating interests and politics

Case-study approach

- Learning by example
- Interactive format: groups on each case

Class cases

- NASA
- Economic modeling
- Oil Spill
- Nuclear Disaster
- Clean Air
- Earthquakes
- Sports Statistics
- Cancer screening
- Politics

You'll get the assignment 4 weeks before that class. A week in advance, you'll circulate a briefing paper to the rest of the class with suggested readings. You'll also comment on another group. Sign-ups soon.

Policy Memo

- Assess how a technically-focused topic of YOUR choosing is relevant to policy
- Communicate technical details to an interested but non-technical audience
- Practice written and oral communication

Syllabus Overview: Prerequisites

- Who should take this class?
  - Grad students (Master's or PhD-level)
  - Open to backgrounds in natural science, social science, engineering, economics…etc.
  - Interested in applying quantitative/scientific information to policy decisions, or using such info in policy decisions
  - Some science-policy background (e.g. ESD10, ESD103 – if not, pay close attention to more policy-oriented ideas in readings, and science-policy lecture Thurs. (and talk to us if questions)
  - Survey course (by design)

Alternative classes

- For TPPers:
  - You may substitute a domain-focused class with explicit justification (contact Dava Newman/Frank Field). Examples: ESD.163 (Managing Nuclear Technology, Lester); ESD.865 (Modeling Electric Power Systems, Webster)
- For S-P Certificate:
  - ESD 103 next fall

Syllabus overview: Assignments

- 3 problem sets (10% each)
- Class Case study (40%)
- Policy memo (20%)
- Participation (10%) including online quizzes [self-graded]
- Historically, those with 175+/200 points have received A-range grades
- (there will be some opportunities for extra credit)

Logistics: Readings

- Web site
- Readings are available as pdfs on Course web site
- Wiki for class case studies, further discussion
- Discussion group for questions

Who are you?

- Name, degree program, year
- Main research topic
- What policies (if any) is your research most relevant to, and who makes decisions about it?

Questions?

- Logistical details
- Your goals for the class

ESD.864 / 12.844J Modeling and Assessment for Policy
Spring 2013