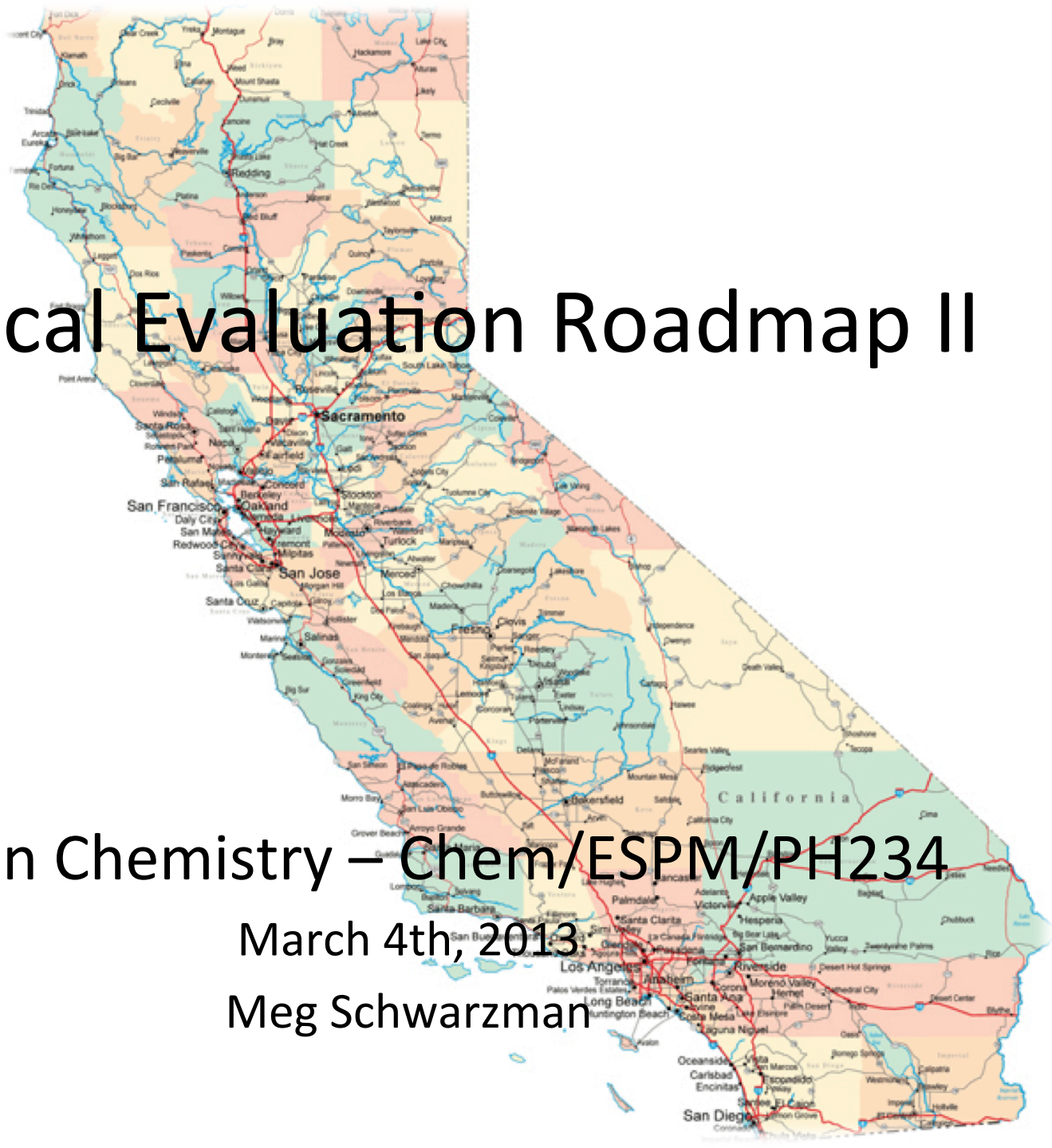


# Chemical Evaluation Roadmap II

Green Chemistry – Chem/ESPM/PH234

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# 4 step process

1. Identify compounds of interest
2. Search for hazard information based on authoritative sources
3. Search for additional information, and note data gaps.
4. Identify preliminary conclusions and places where finer distinctions are needed. *What differentiates your chosen technology (for better or worse)?*

# Hazard trait tables: how did it go?

## Physical/Chemical Properties & Acute Toxicity

Compound (Name & CASRN)	Reactivity	Flammability	Corrosivity	Explosivity	Acute toxicity (LD50)	Irritation (eye or skin)

# Hazard trait tables: the next one

**Chronic Human Health Hazard Table**

Compound (Name & CASRN)	Carcinogen/ mutagen	Reproductive	Developmental (teratogenicity)	Neurotoxicity	Endocrine disruption	Respiratory effects	Other hazards

# Finding Health Hazard Information

- Screen for inclusion on authoritative lists using pharos to find what authoritative evaluations exist.
- Find toxicity data using HSDB (Toxnet) or PubMed/PubChem abstracts.
- For chemicals with little or no hazard data, consider functional group analysis, chemical class information, and analogies to similar chemicals/materials.

# Step 1: Search authoritative sources

Chemicals that are recognized as hazardous by authoritative bodies (governmental, regulatory or international consensus groups); information just needs to be retrieved.

- Search [www.pharosproject.net](http://www.pharosproject.net) to find what authoritative evaluations exist
- From pharos, go to source listing (IARC, NIOSH, NTP, etc) for more information.
  - Translate from authoritative list to hazard trait (ie. IARC =Cancer potential class 1A-4)

## Step 2: Search for additional information

- If substance is not listed on an 'authoritative source', search HSDB (toxnet) or PubMed abstracts.
- Other sources are described at the link on your hazard traits table:

[https://docs.google.com/document/d/1XmywmkZyXDso6GbWQPPuRNN\\_X3k7LNxFRym1xAU1SSE/pub](https://docs.google.com/document/d/1XmywmkZyXDso6GbWQPPuRNN_X3k7LNxFRym1xAU1SSE/pub)

# What level of information do I need?

## Screening

Pharos – chemical search

Plum – list translation

Source Lists – details



## Summary of Data

PubMed/PubChem

Abstracts



Hazardous Substance

Data Bank

## Primary Literature



## Chronic Human Health Hazard Table

Compound (Name & CASRN)	Carcinogen/ mutagen	Reproductive	Developmental (teratogenicity)	Neurotoxicity	Endocrine disruption	Respiratory effects	Other hazards
Benzene 71-43-2	IARC group I carcinogen (sufficient evidence for cancer in humans)	Male reproductive toxicity (Prop 65 listing)	Developmental toxicity (Prop 65)				Cardiac toxicity Hematologic effects
2,4-D 94-75-7	None known (poss due to contam?)	Not known	Not known	Known neurotoxicant (Greanjan & Landrigan)	EU EDC category 2 (in vitro evidence)		Acute: blindness, respiratory effects, skin sensitizer