

# What is environmental science?

UC International – Environmental Science 101  
Lecture 1a

Dr. Mike Booth  
Biological Sciences

# Environmental science

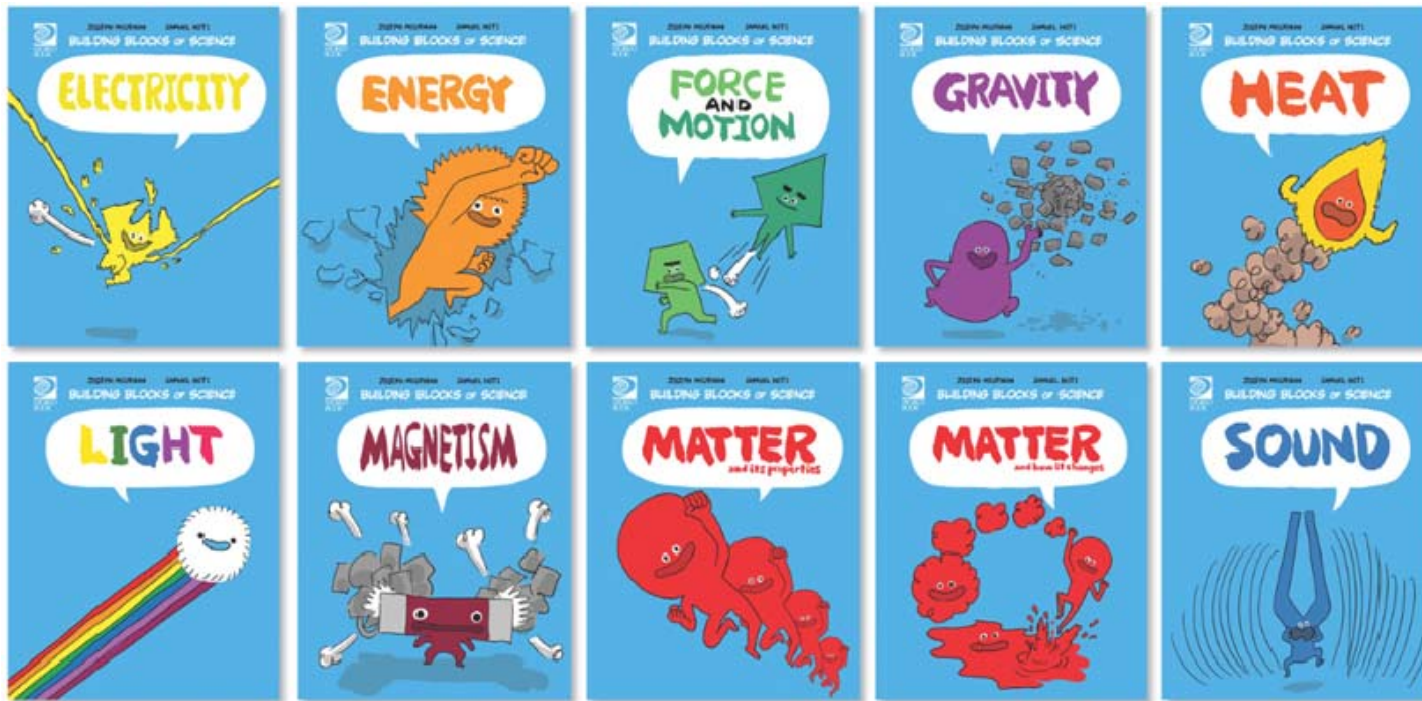
- Interdisciplinary: Physical, biological, information science
- Understand the linkages and interaction of physical, chemical, and biological processes
- A “systems approach” to the analysis of environmental problems
- Understanding changes in space and time, typically in a quantitative analysis.

# Interdisciplinary

Physical

Biological

Information



<https://international.worldbook.com/building-blocks-of-physical-science/>

# Interdisciplinary

Physical

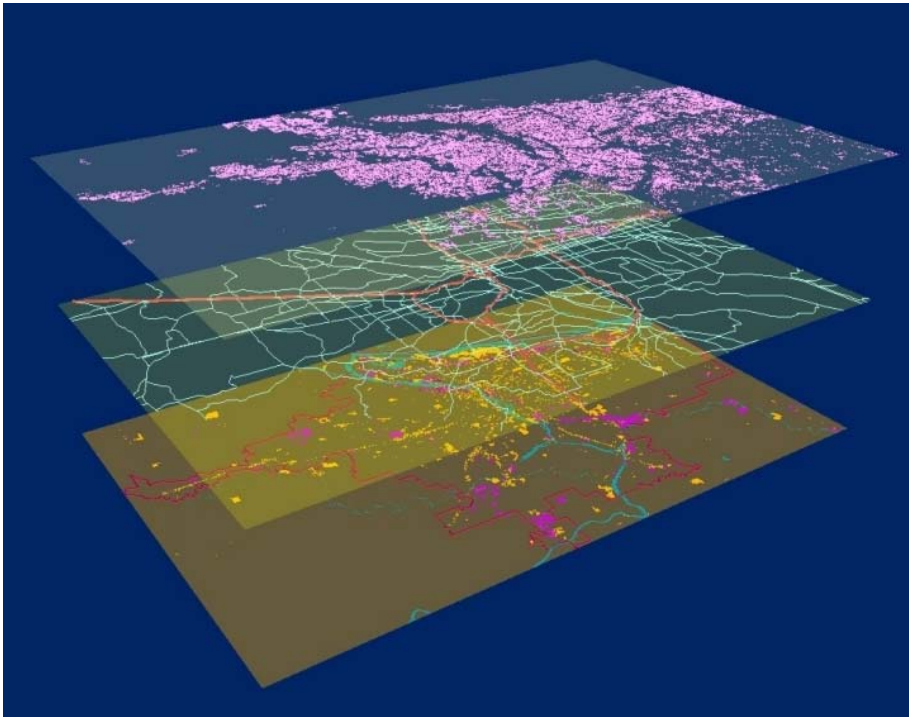
**Biological**

Information



# Interdisciplinary

Physical



<https://www.geog.illinois.edu/cms/One.aspx?portalId=127565&pageId=288651>

Biological

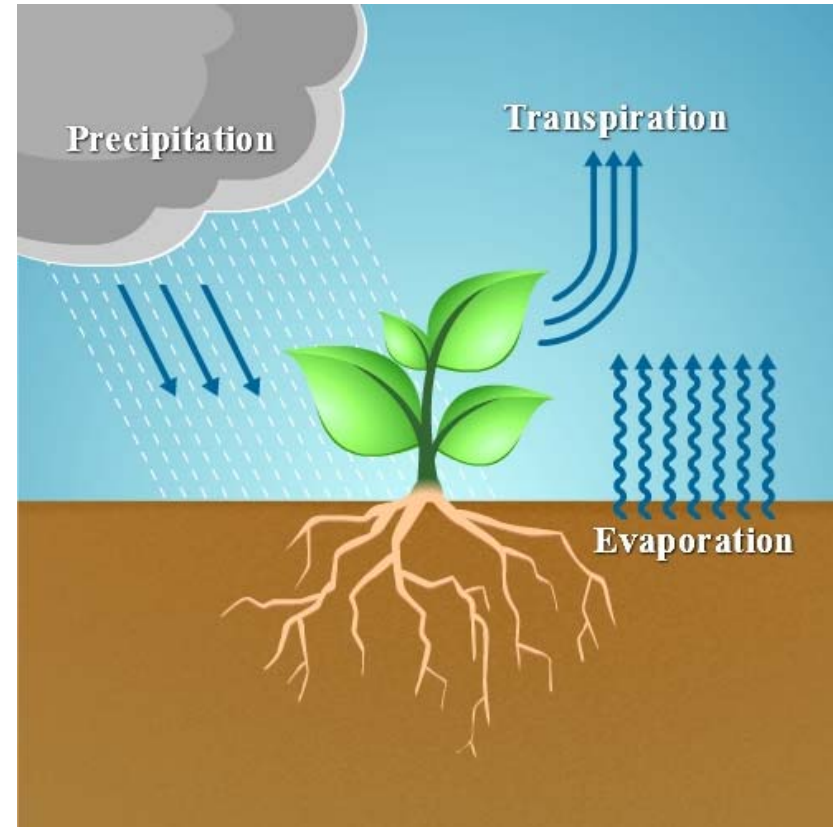


<https://www.btelligent.com/en/portfolio/big-data/>

# Linkages between physical, chemical, and biological processes

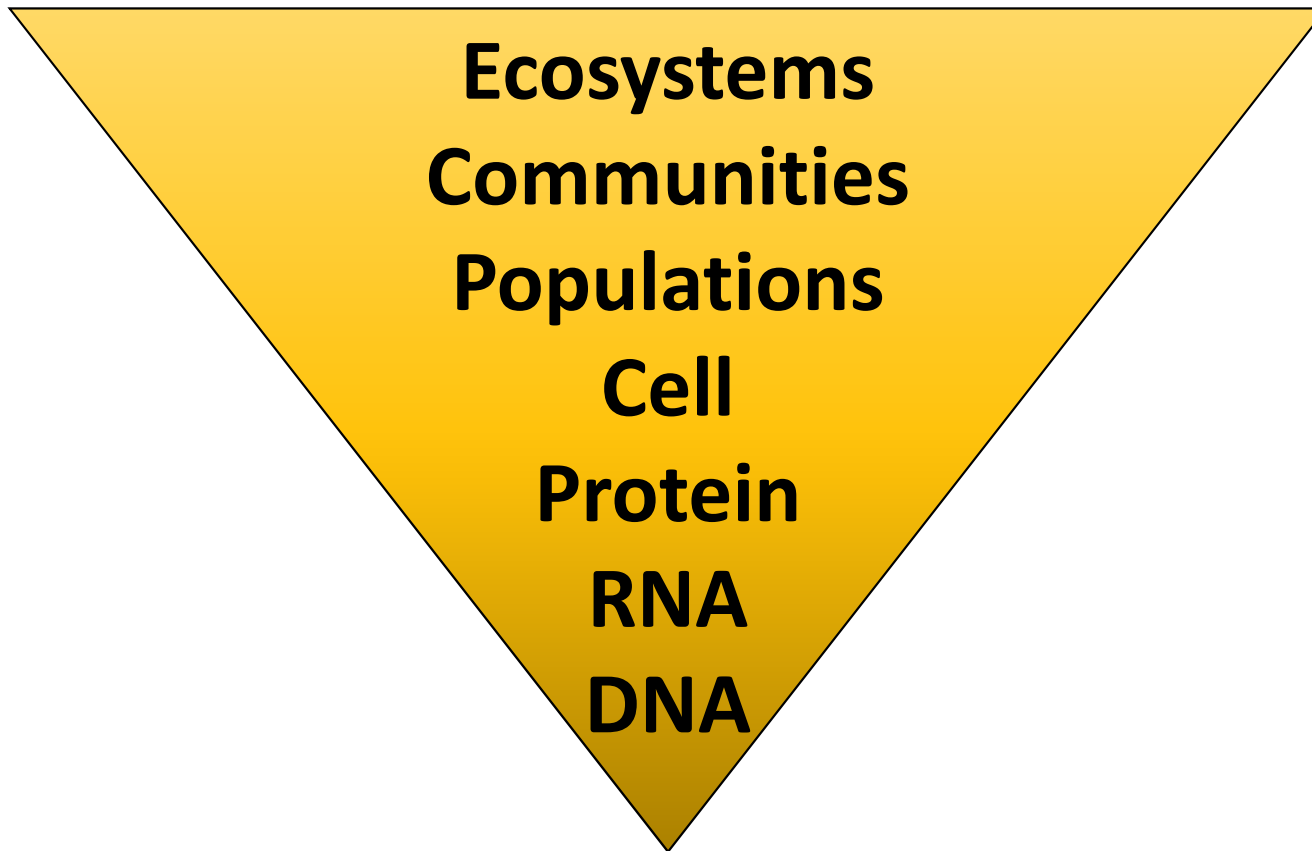


<https://www.hakaimagazine.com/features/oil-spill-cleanup-illusion/>



<http://blogs.oregonstate.edu/inspire/2011/07/21/evapotranspiration/>

# “Systems” approach



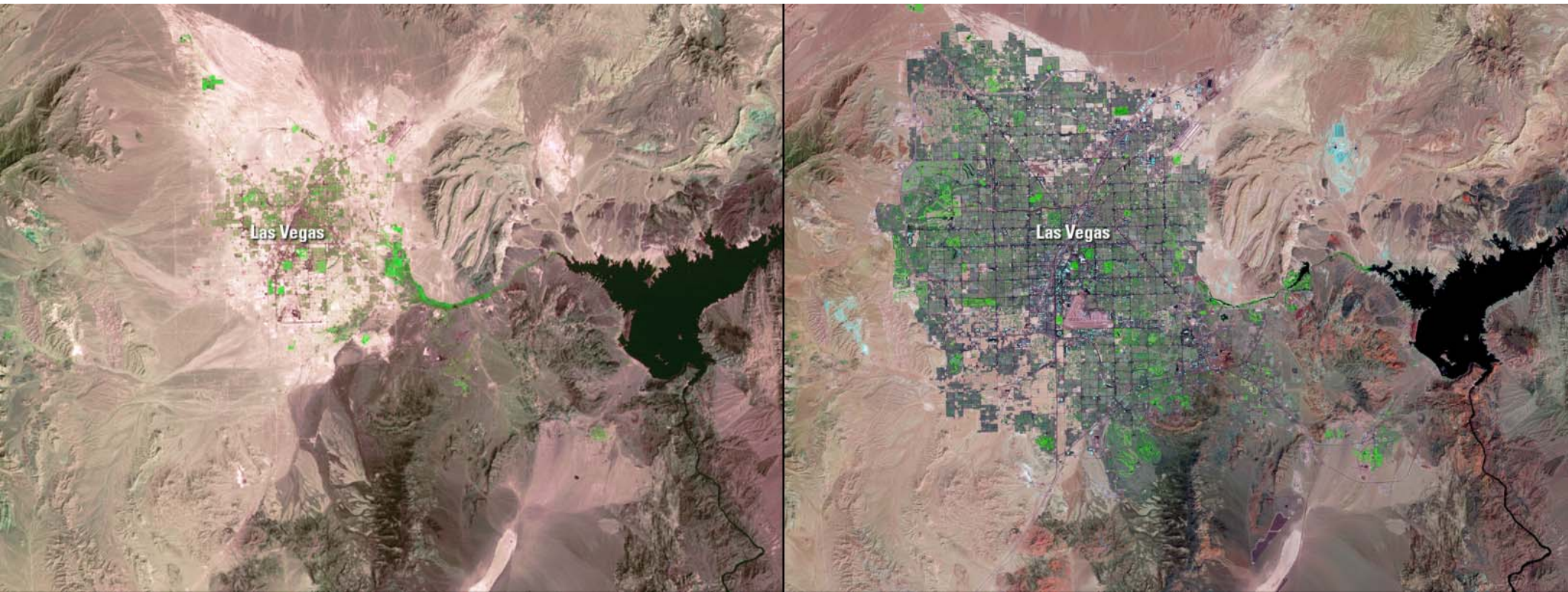
# QUANTITATIVE

| Var1 | Var2 | Var3 | Var 4 |
|------|------|------|-------|
| 1    | 18   | 29   | A     |
| 2    | 21   | 29   | A     |
| 3    | 31   | 20   | B     |
| 4    | 30   | 26   | B     |
| 5    | 26   | 16   | C     |
| 6    | 18   | 18   | C     |





# Analysis of change in space and time



**Las Vegas, Nevada 1972**

**Las Vegas, Nevada 2018**

# Humans are part of the system

- *Resource use* (e.g., fossil fuels, water, trees)
- *Land use change* (conversion of land characteristics)
- *Transformation of resource pools* (e.g., generation of novel chemicals, salinization, production of greenhouse gasses)

# Use scientific method to:

- Understand how ecosystems work
- Make predictions about future changes
- Generate strategies to achieve particular environmental and societal goals

***Environmental science provides data to inform societal (personal, economic, political) decisions***

# Goals: UCI Environmental Studies 101

- Learn the scientific method and how it is applied to environmental problems, through the lens of aquatic ecosystems and water resources
- Understand how ecosystems function and the ties between physical, chemical, and biological processes
- Become aware of the role humans play in ecosystems and how science can inform management