

# CAS & Disciplines

A Quick Overview, Some Suggestions

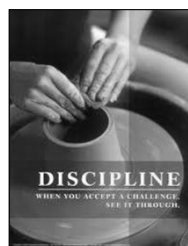
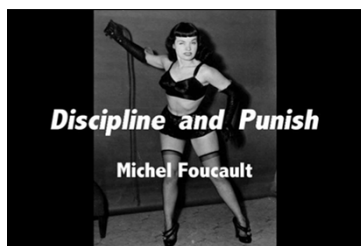
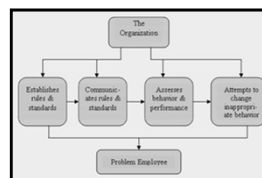


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# Discipline



Dutch streetcore band



## Outline

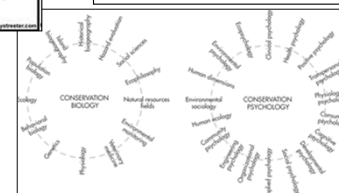
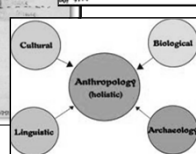
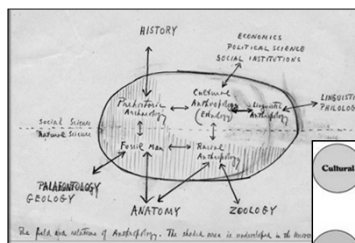
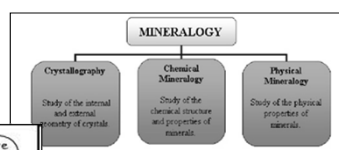
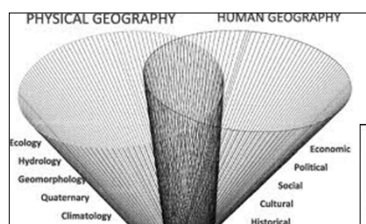
### Background

- How did disciplines form?
- History & future of the Academy
- Social Sciences, Humanities, the Professions
- Multidisciplinary, Interdisciplinary, Transdisciplinary
- The Importance of Interstitial Areas

### Thought Experiments

- Recognizing Diversity
- Forming and Leading Teams
- Your Career

## Inside Disciplines



<b>Social Science Discipline:</b>	<b>Central Focus:</b>	<b>Studies Include:</b>	<b>Structure:</b>	<b>Primary Data Collection Strategy:</b>	<b>Remarks:</b>
<i>Anthropology</i>	culture at all times and places	holistic account & understanding of the human species in all its aspects	social/cultural, phys/biol, language, archaeology many hybrids	qualitative, some quantitative, comparative observational & fieldwork	"most scientific of the humanities, most humanistic of the sciences" broad integration
<i>Economics</i>	fiscal and material management	financial aspects of human behavior	macroeconomics (system wide) microeconomics (household, firm)	strongly quantitative	rational behavior, market equilibrium etc but heterodox schools (green, Marx, etc)
<i>Geography</i>	Earth processes and changes	reciprocal relationship b/t human agency and biophysical world	human & physical geography, GIS many hybrids	HG qual + quant, PG quantitative fieldwork	straddles physical and soc sciences; but deep split retards integration
<i>Linguistics</i>	communication and its rules	meaning, x-cult comparison, lang acquisition, cognition	language structure language meaning	quantitative, qualitative, some fieldwork	considerable integration with social sciences
<i>Political Science</i>	political behavior	description, analysis of political systems and behavior	many hybrids	quantitative, some qualitative	considerable integration with social sciences
<i>Psychology</i>	behavior and mental processes	brain & social behavior, modify humans, animals	social, behavioral, clinical psych	quantitative observational	straddles biological & social sciences but little soc sci integration
<i>Sociology</i>	modern society: industrialization urbanization	social rules & processes, social action, class, race	many hybrids	quantitative (surveys), some qualitative	considerable integration with social sciences

<b>Humanities Discipline:</b>	<b>Central Focus:</b>	<b>Studies Include:</b>	<b>Structure:</b>	<b>Primary Data Collection Strategy:</b>	<b>Remarks:</b>
<i>History</i>	investigation of the written past at many scales	individual lives, politics, societies, institutions, & civilizations	usually divided by region and period into specific sub-categories	hermeneutic and comparative analysis of texts	narrative examination & analysis of events
<i>Literature</i>	exploration of ideas through writing	many genres: slave, gender, institutional, environmental, ethnic	particular languages, comparative languages	hermeneutic and comparative analysis of texts	close relationship with history & the social sciences
<i>Languages</i>	mastering syntax, grammar, and nuances of a particular language	dialects, argot, patois, slang, etc	departments that specialize in a particular language	practice, observation	a critical skill for fieldwork in any social science
<i>Philosophy</i>	existence, values, knowledge, reason, mind, & language	philosophers, philosophic traditions, particular questions	classical, rhetoric, epistemology, ethics	hermeneutic and comparative analysis of texts	undergirds the history of all disciplines
<i>Classics</i>	Classical period archaeology, Greek and Latin authors	rural, urban, and political life in Classical times	Classical literature Classical archaeology	hermeneutic and comparative analysis of texts	despite effort, remains a closed discipline
<i>Religion</i>	beliefs about the origin and purpose of the universe	evolution of religious thought & practices, contemporary issues	departments have ancient/classical, & specific studies by religious tradition	hermeneutic and comparative analysis of texts	many connections to history, archaeology, anthropology
<i>Visual and Performing Arts</i>	the embodied expression of emotion	music, dance, theatre, plastic arts	departments often housed with art history	practice, observation	draws inspiration from everywhere

A Selection of Professional Schools	Central Focus:	Structure:	Primary Data Collection Strategy:	Remarks:
<i>Law</i>	training lawyers	criminal, contract, tort, international, constitutional, property, etc	case study; learning analytic, investigative, & procedural skills	strong connection to content
<i>Medicine</i>	training health care professionals	internal, general, specialist, etc	learning systems and processes, analytic and procedural skills	strong connection to content
<i>Public Health</i>	training professionals to manage public health issues	research, administrative, etc	learning analytic and procedural skills	strong connection to content
<i>Engineering</i>	training engineers	civil, aerospace, electrical, mechanical, etc	learning systems and processes, analytic and procedural skills	strong connection to content
<i>Education</i>	training educators	primary, secondary, higher, adult	learning analytic and procedural skills	weak connection to content
<i>Environment</i>	training environmental managers	forestry, marine, Earth, ocean, conservation, etc	learning systems and processes, fieldwork	strong connection to content
<i>Journalism</i>	training journalists	news, values, independence, style, ethics, etc	learning analytic and investigative skills	strong connection to content
<i>Business</i>	training entrepreneurs	finance, marketing, administration, economics, etc	learning analytic and procedural skills	strong connection to content

## Among Disciplines: Multidisciplinarity

- A non-integrative mixture of disciplines in that each discipline retains its methodologies and assumptions without change or development from other disciplines within the multidisciplinary relationship.
- Cooperation is mutual and cumulative but not interactive.

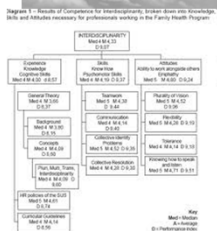
Table 1: Disciplinarity and multidisciplinaryity: characteristics and comparison

	Well defined approach known instruments	Complex approach unknown instruments	Efficiency	Conflict	Creativity	Impact on disciplinary knowledge
Disciplinarity	Appropriate	Less appropriate	High	Less probable	Limited to knowledge domain	Limited, relatively to the existing paths
Multi-disciplinaryity	Less appropriate	Appropriate	Low	Very probable	High, goes beyond knowledge domains	High possible impact, challenging existing paths

# Interdisciplinarity

Engaging all formal, non-formal and even informal education, public awareness, and training programs at all levels to learn and to educate our way out of what currently appears as an

(Hopkins, 2008)



# Interdisciplinarity

Link

Meaning: Interdisciplinarity occurs when disciplines intermesh and collaborate among themselves.

The notion provides students with an opportunity to create and pursue interdependent, innovative teaching which does not fit into traditional disciplinary categories.



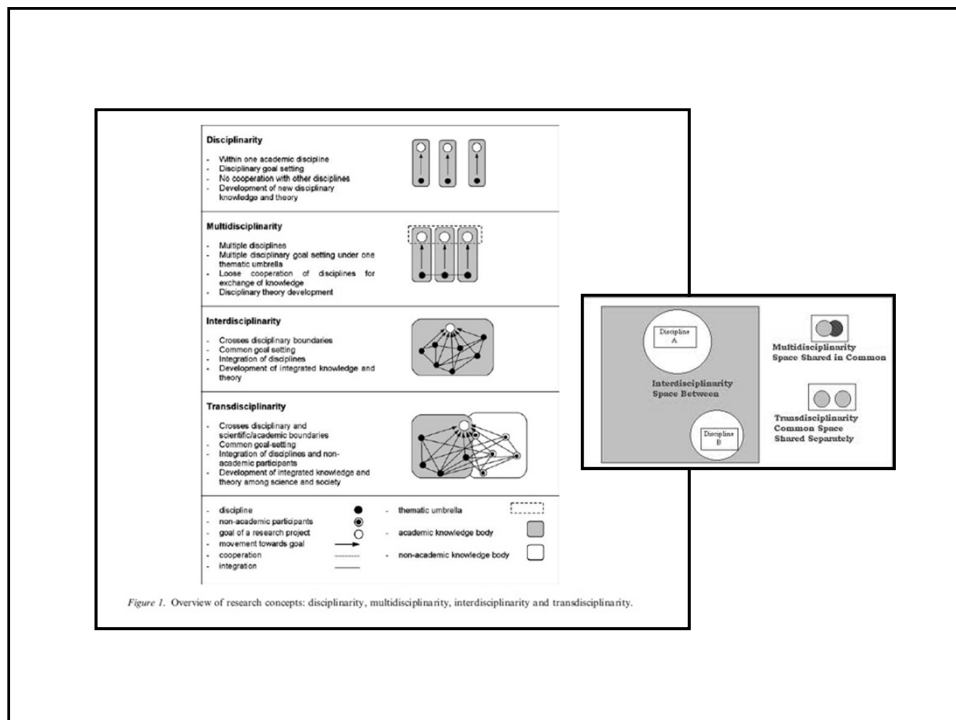
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# Transdisciplinarity

- Different academic disciplines work jointly with practitioners and stakeholders to solve a real-world problem.
- That which is at once *between* the disciplines, *across* the different disciplines, and *beyond* all disciplines.
- There is no hierarchy of disciplinary utility
- Research strategy is to create a holistic, complex systems approach to the issue.



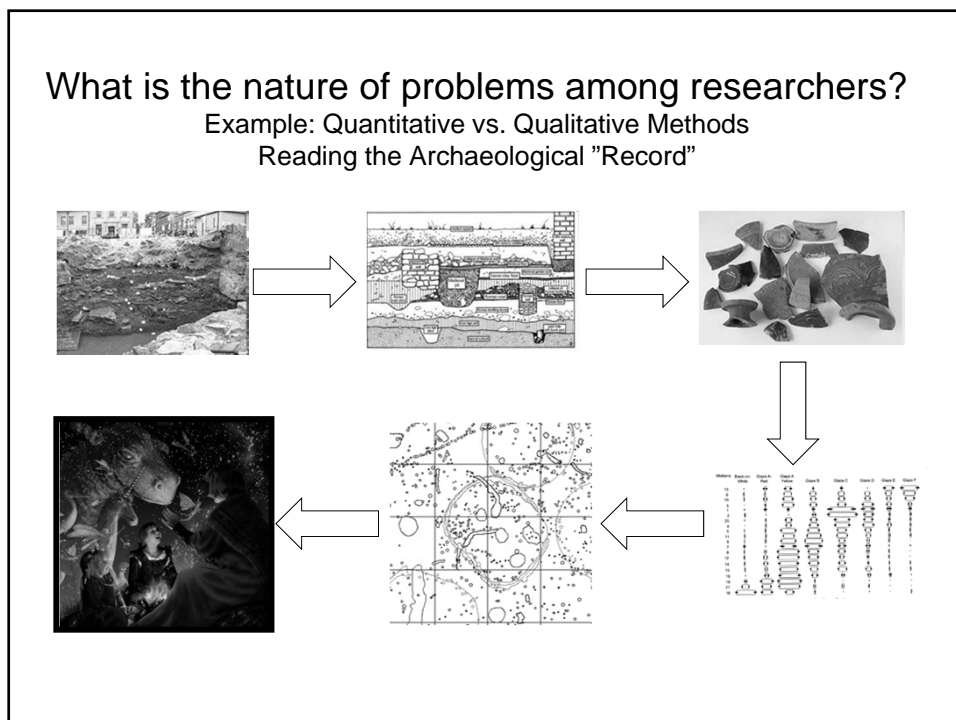
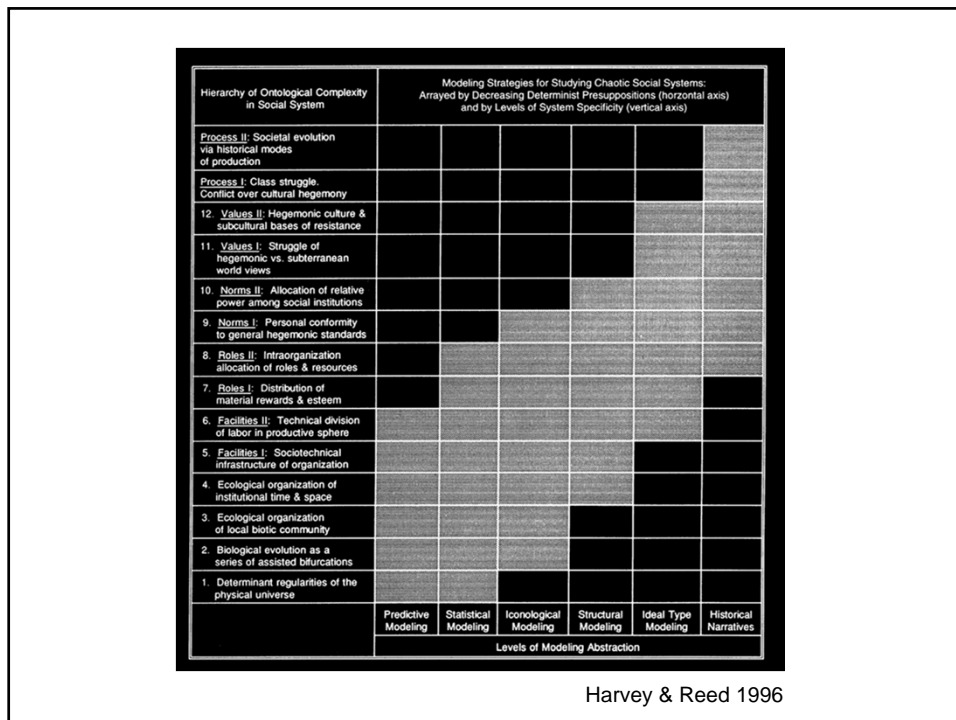




## Complex Systems

Key features in complex biogeophysical systems correspond with those of social systems:

<p>Integration</p> <p>Communication</p> <p>History / Initial Conditions</p>	<p>Holistic nature of culture</p> <p>Knowledge sharing through the senses</p> <p>Formative power of traditions, structures and materials, strategies, habits of mind</p>
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## What Skills are Needed?

- **Collaborative skills:** active listening, build coalitions, manage conflict, marshal resources
- **Epistemological agility:** navigate different kinds of knowledge (local/expert, qual/quant, deductive/inductive, policy/science, etc)
- **Map the system:** integrate knowledges
- **Understand cultural differences:** stakeholders, researchers

## Multidisciplinary, Interdisciplinary, Transdisciplinary: conversations, caveats, careers

What are the Constraints?

- time and money
- what people think
- where to publish?
- finding a position in the Academy
- finding a position not in the Academy
- learning to run projects



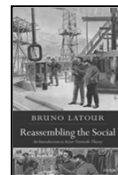
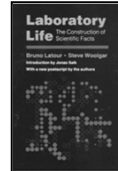
The Eternal Student



## What Kuhn (and Latour) Demonstrate

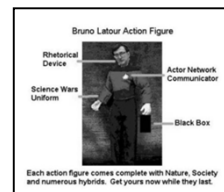


**Paradigm Shift:** During the period of **normal science**, the failure of a result to conform to the paradigm is seen **not as refuting the paradigm**, but as the mistake of the researcher. As **anomalous results build up**, science reaches a **crisis**, at which point a **new paradigm**, which subsumes the old results along with the anomalous results into one framework, **is accepted**. This is termed **revolutionary science**.



"Scientists and engineers speak in the name of new allies that they have shaped and enrolled; they add these...resources to tip the balance of force in their favor."

What does self-reflexivity mean?!



## Specialist or Generalist? Must we Choose?

"Improvisation relies exclusively on a mastery of the fundamentals"

--jazz musician Rich Scoville



## Interstitial Areas: Working across the Divide

- career advantages
- choosing carefully
- project advantages
- avoiding grant disasters
- intellectual attraction
- the coming wave

