

What is Interdisciplinary?



Discipline (and punish? :-)

Physics

Chemistry

Biology

Mathematics

Economics

Psychology

Etc.

Or . . .

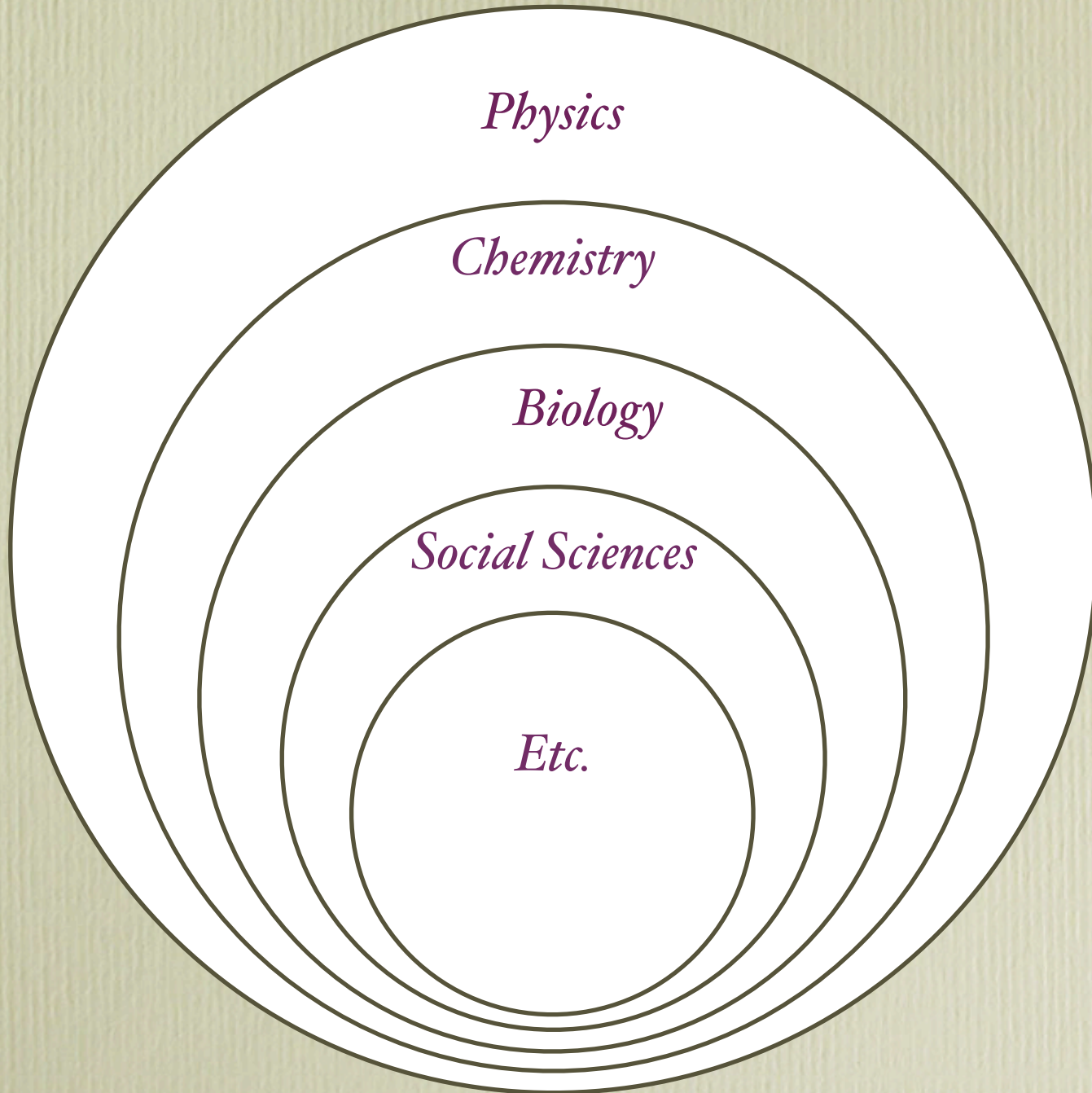
Physics

Chemistry

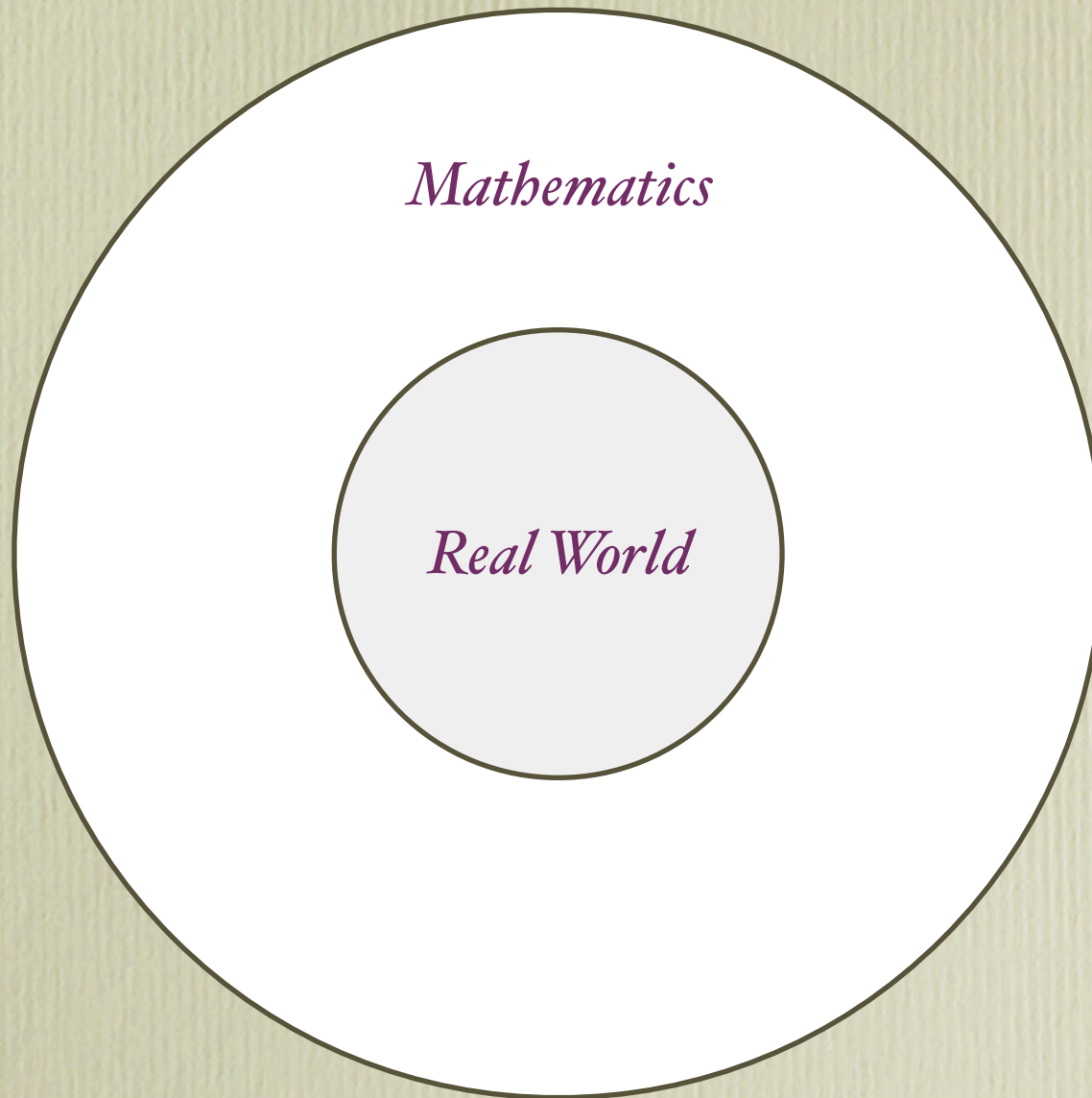
Biology

Social Sciences

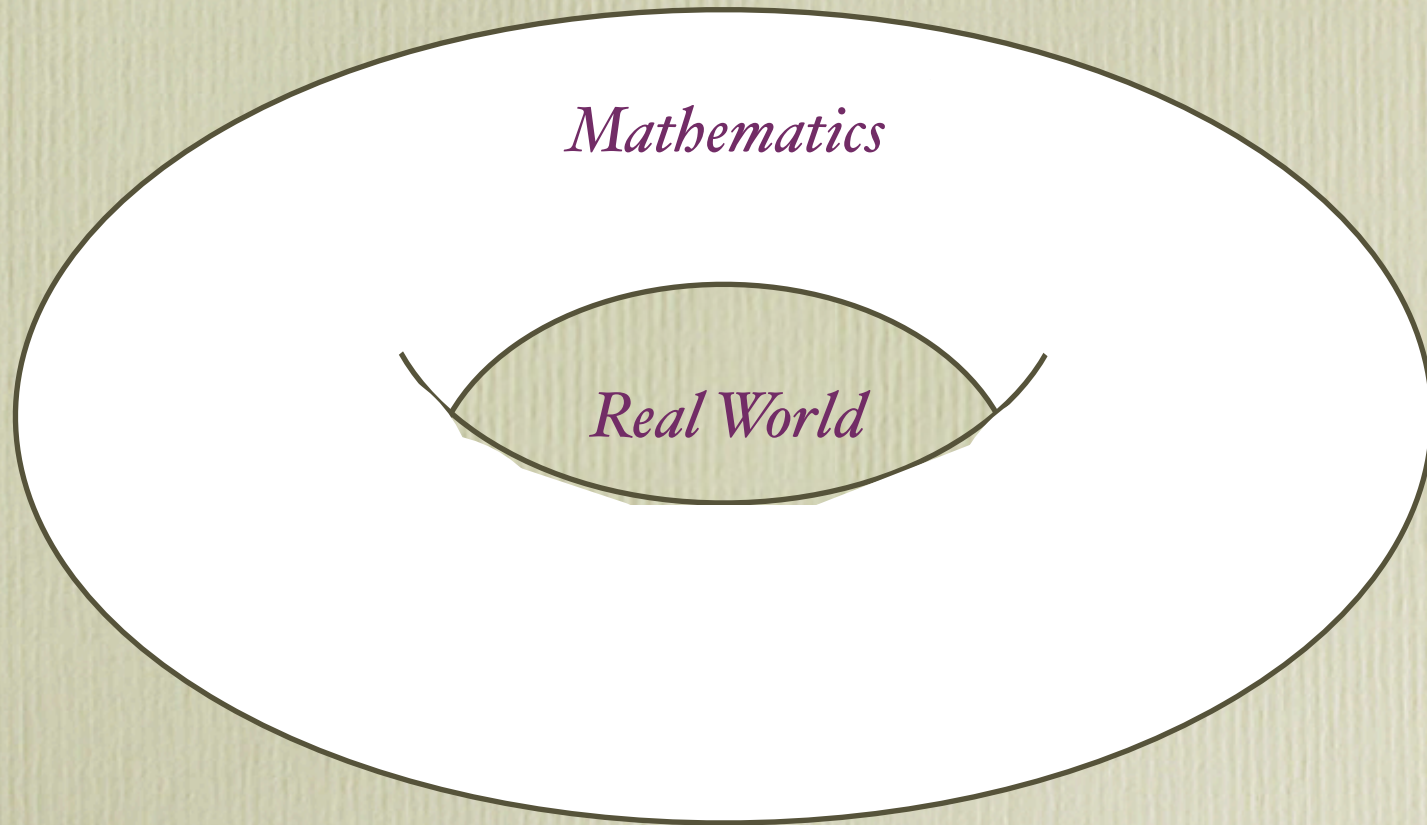
Etc.



Or . . .



But is this really . . .



Back to this version . . .

Physics

Chemistry

Biology

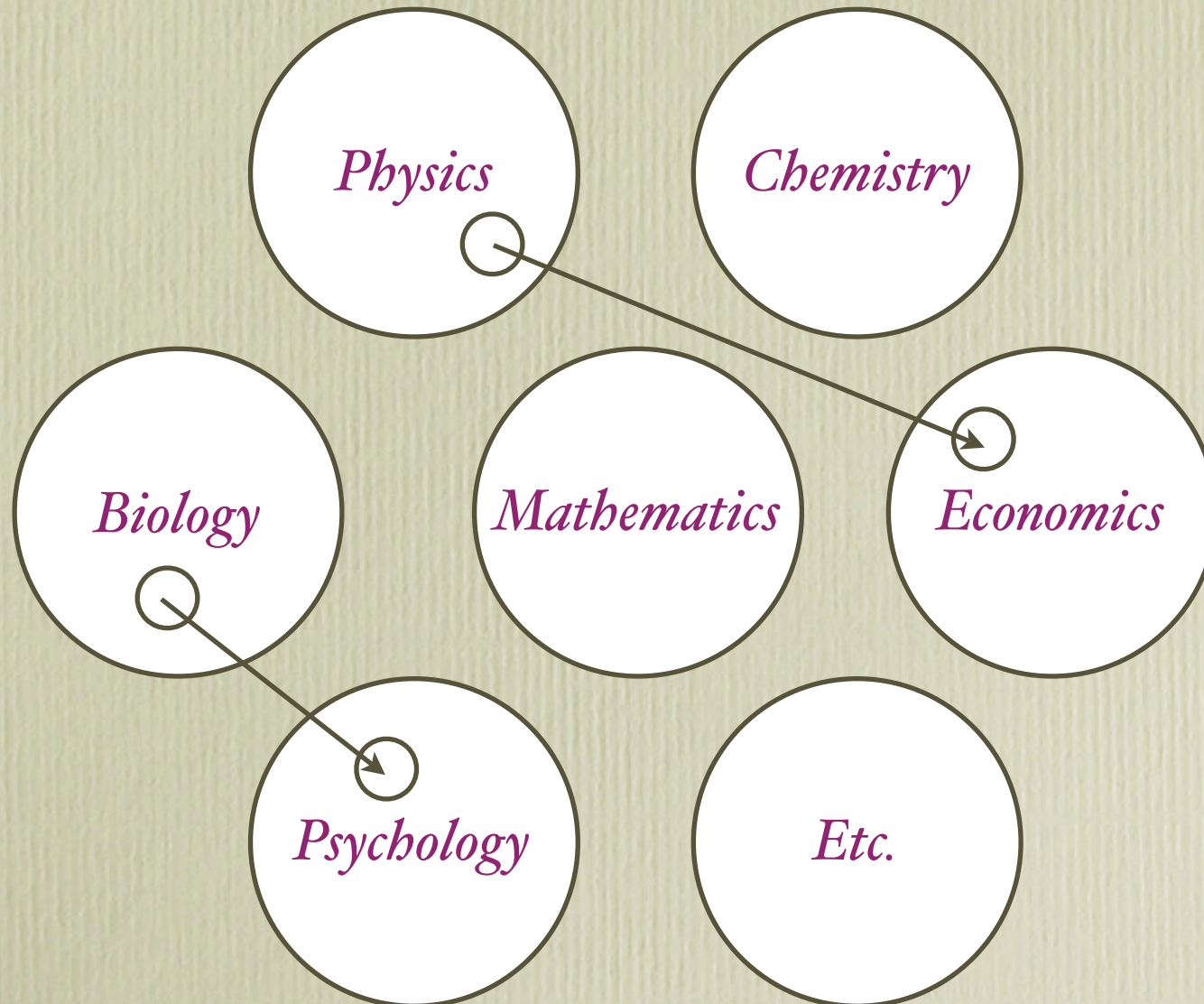
Mathematics

Economics

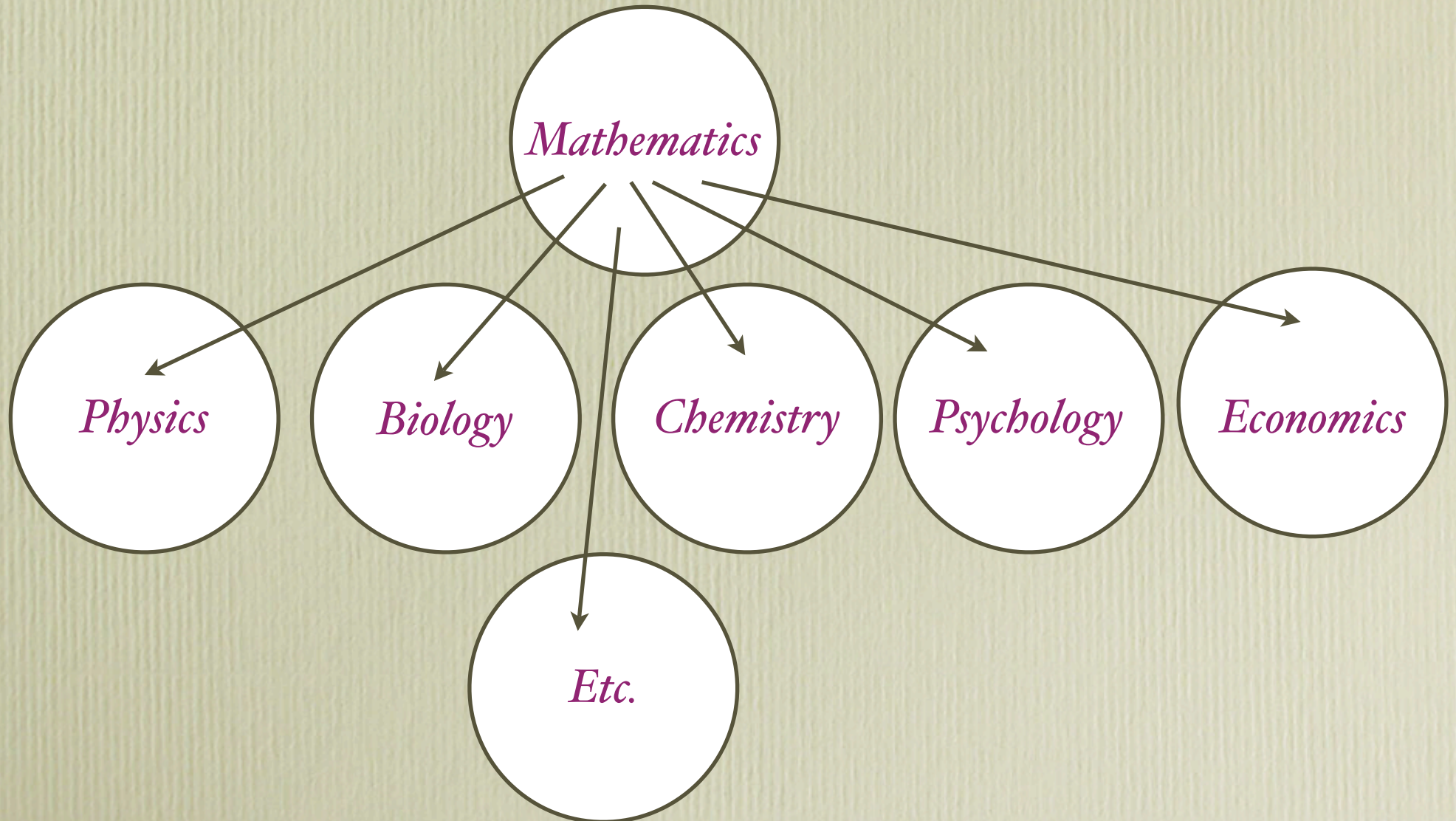
Psychology

Etc.

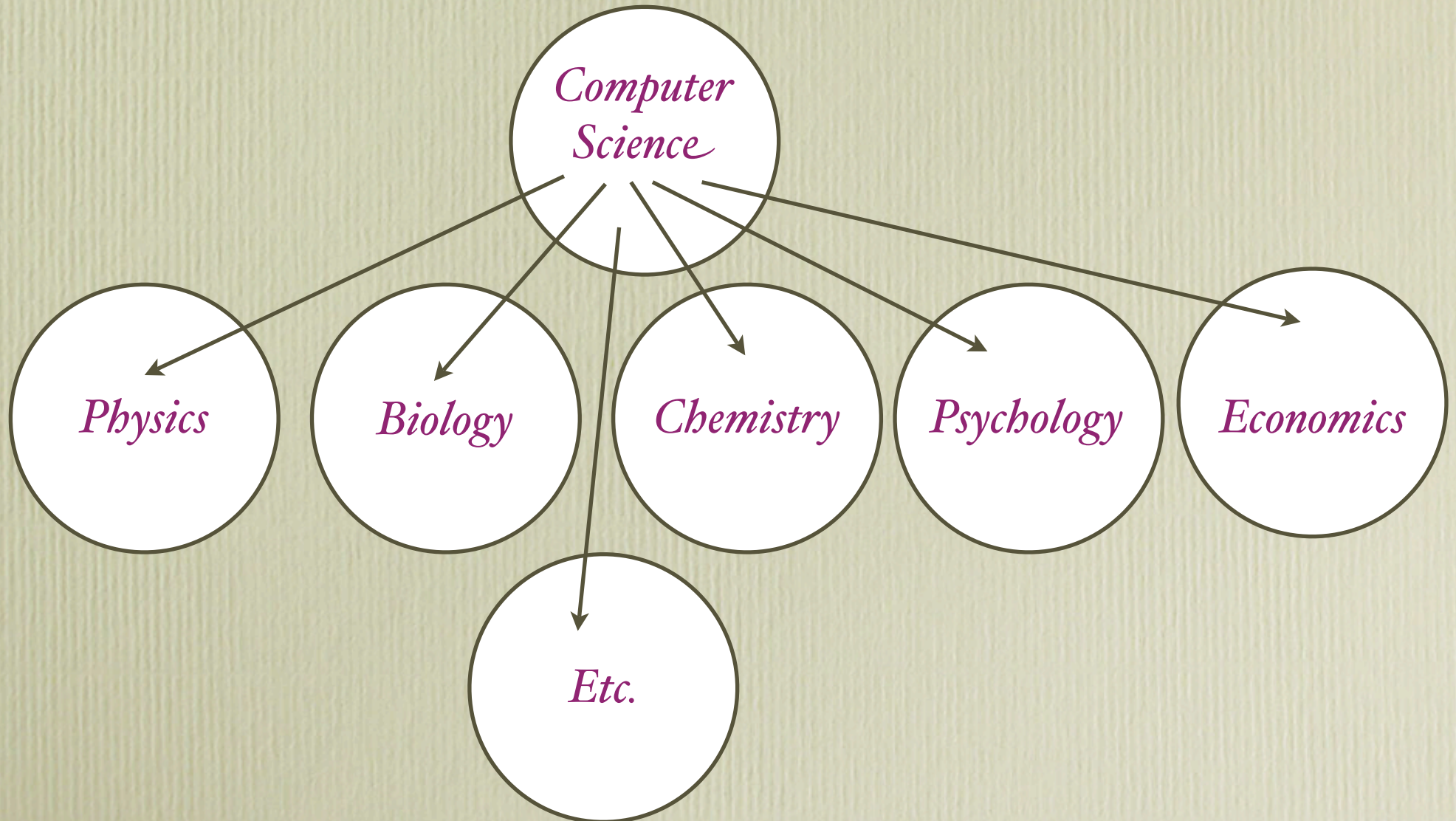
Multidisciplinary involves pieces of more than one



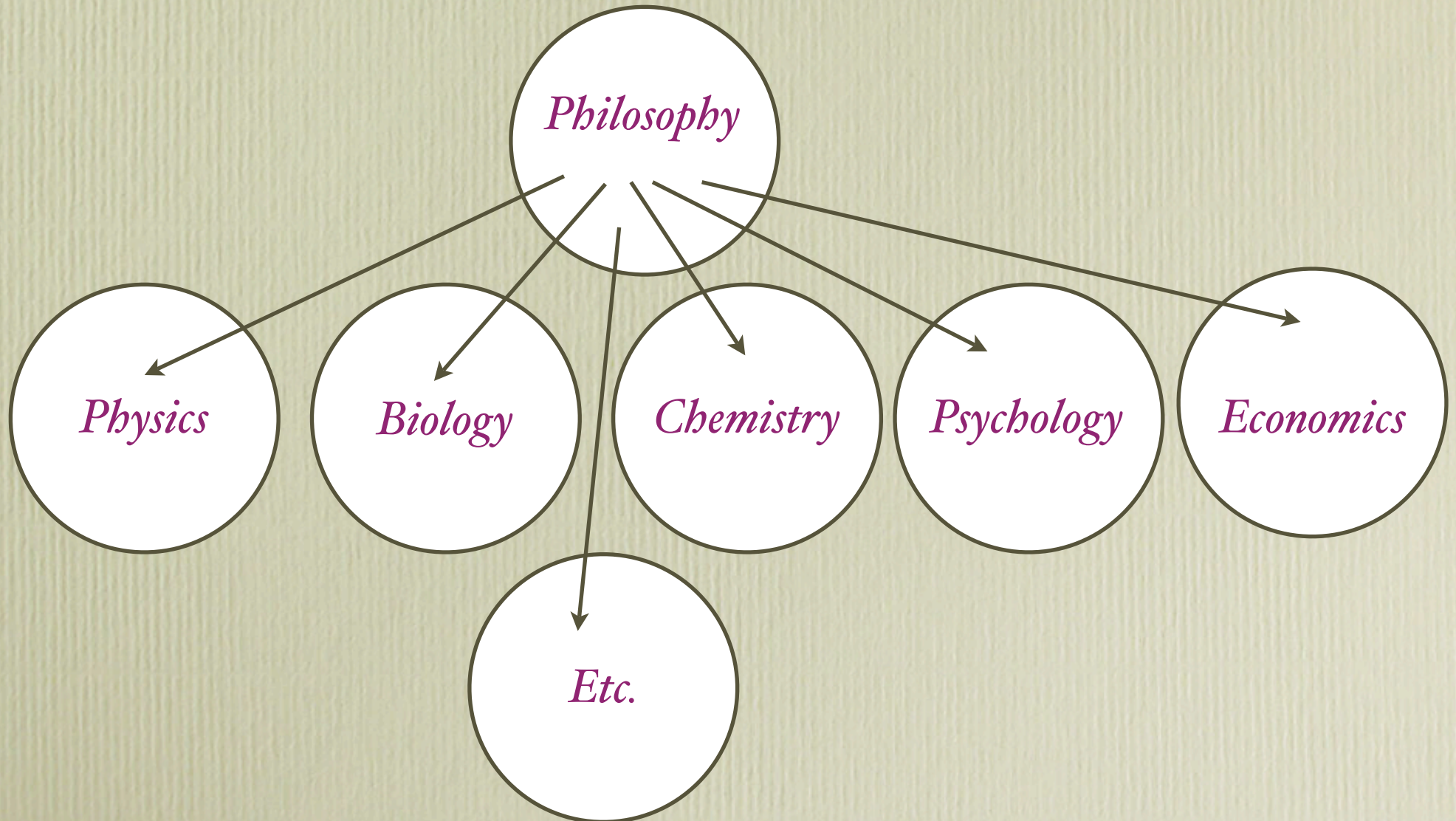
Some disciplines seem to lend themselves easily to this . . .



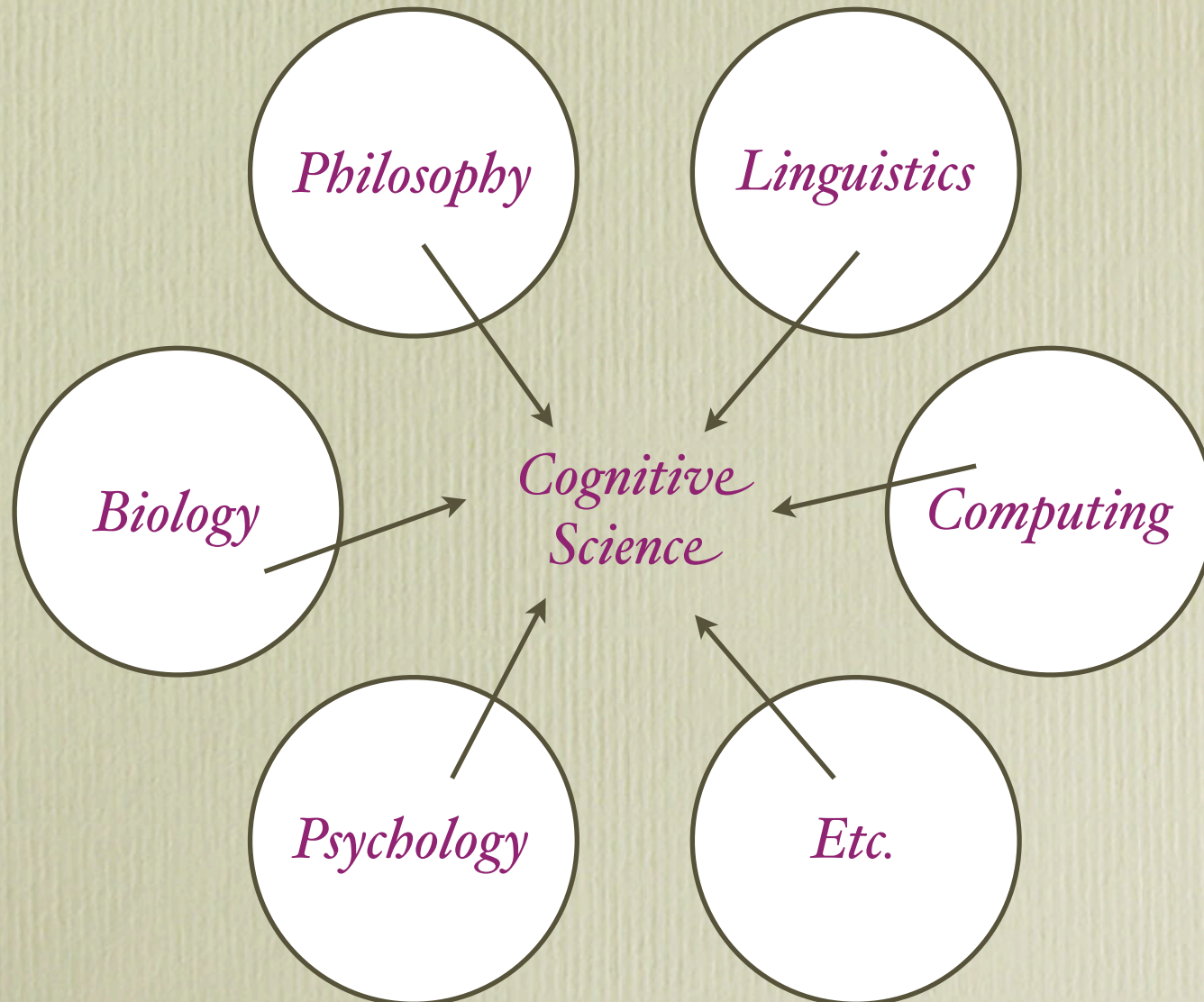
Or . . .



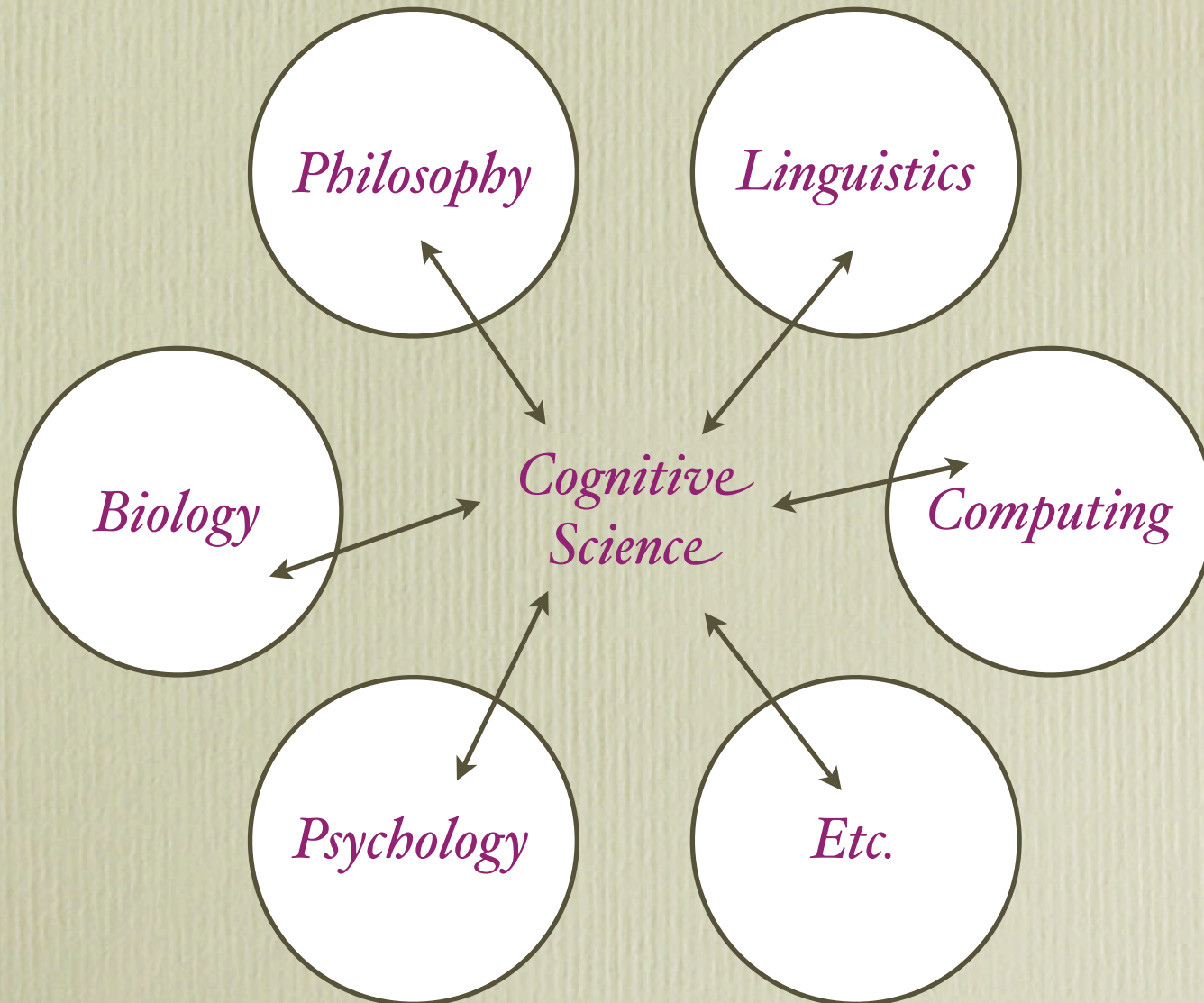
Or, some claim . . .



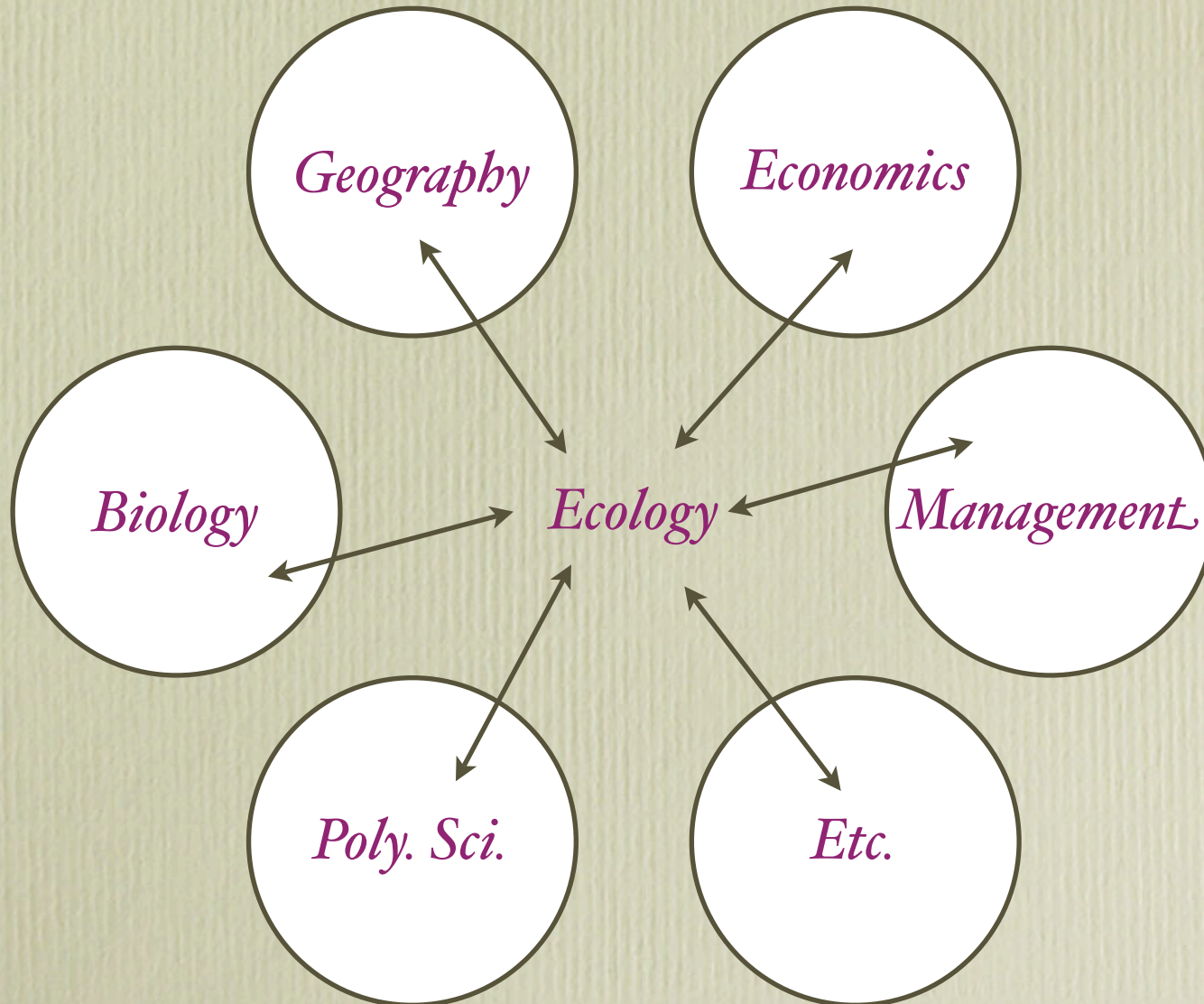
Interdisciplinary, on the other hand, lives in interstices:



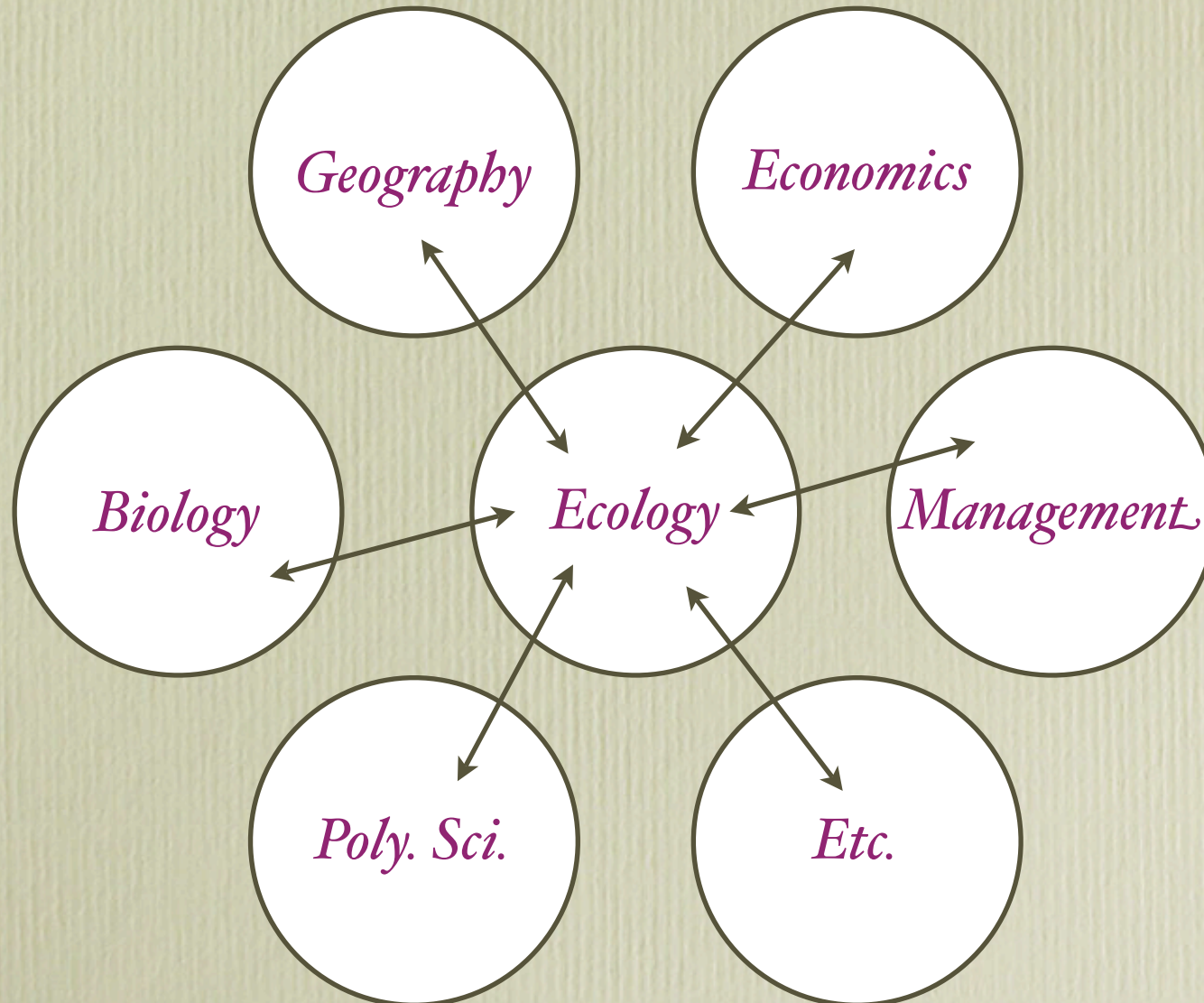
Eventually (or often, or hopefully) it goes both ways:



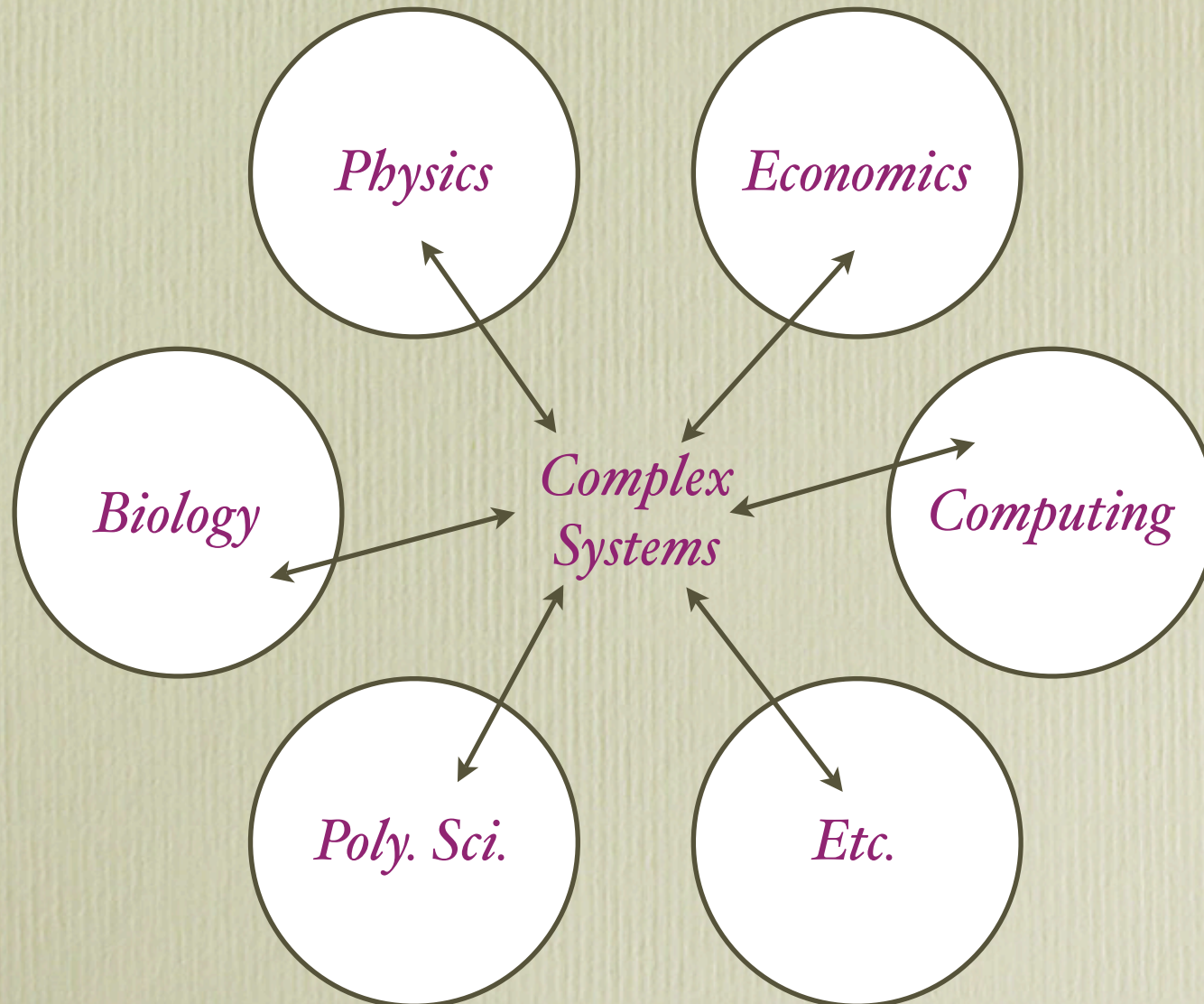
Another traditional example:



Sometimes, these become
new disciplines:



Of course, this Summer School is:



How to become interdisciplinary . . .

- Exposure to a variety of disciplinary work
- Exposure to interdisciplinary work
- Exposure to and experience with tools and methods from a variety of disciplines
- Exposure to and experience with interdisciplinary tools and methods
- Experience working with others in an interdisciplinary mode . . .

And also, an understanding of how
disciplines work . . .

A discipline typically has:

- A language (with technical terms . . .)
- An ontology (a collection of “objects”)
- An epistemology (what constitutes knowledge, and how to acquire and validate it)
- A collection of methods and tools
- A (collection of) theoretical perspective(s)
- Criteria for “acceptability” (of subject matter, methods, and behavior . . .)

To be interdisciplinary, one must be able to:

- Be comfortable with multiple languages, and shift easily among them
- Be comfortable with a variety of ontologies, epistemologies, methods, tools, and theoretical perspectives
- Be able to shift perspectives easily, and continually see things in new ways
- Use analogies and metaphors fluidly

And further . . .

- Develop facility with tools and methods from various disciplines
- Develop facility with new and innovative tools with multiple applicability
- Understand criteria of rigor and acceptability, and eventually, work to develop your own such criteria
- And, be willing to be an “outsider,” to take risks, and have internal measures of success and value . . .

During the Summer School,

- Expose you to a variety of discipline based subject matters, methods and tools
- Expose you to a variety of interdisciplinary examples, methods and tools (e.g., entropy and probabilistic methods)
- Expose you to uniquely interdisciplinary efforts currently being explored (e.g., network/graph methods, agent based modeling)
- Push you to engage in interdisciplinary work in a group context, and to work outside your familiar domain of experience

Important goals of the Summer School are:

- To help you build your experience and skills as interdisciplinary workers
- To have you serve as examples of such work after you leave the Summer School
- To be seeds, spreading new methods, new approaches, and new ideas
- And also, to provide a context in which those working in the field can present, discuss, and explore their work with the next generation . . .

Will it work?

- Obviously, there are no guarantees. The Summer School itself is an experiment in a variety of ways. Each Summer things are different. We explore different approaches to content, to pedagogy, to interaction with students, to schedules, etc.
- The continued interest by students in participating, and positive response to their experience, says we are doing at least some things right :-)