

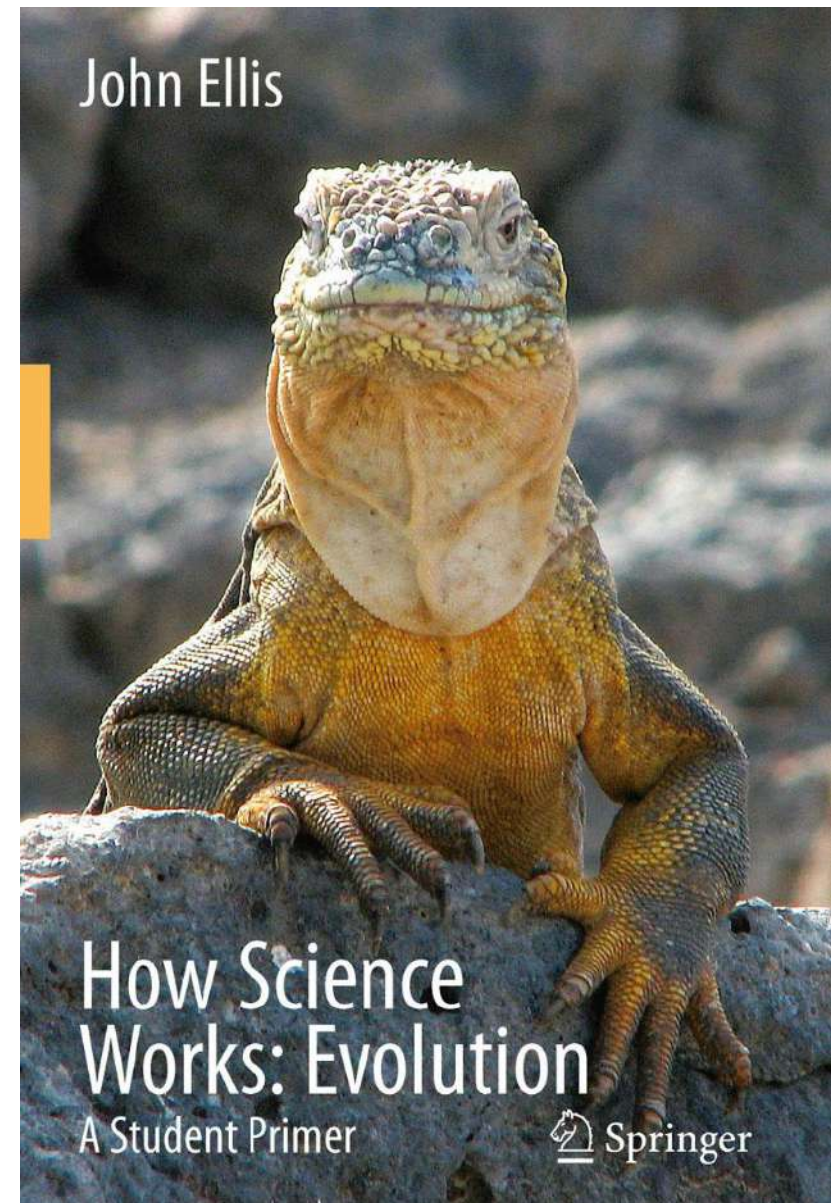
Znanost u svakodnevnom životu

doc. dr. sc. Dario Hrupec
Odjel za fiziku Sveučilišta u Osijeku

Alumni BiolOs, 15. prosinca 2021.

motivacija

- (1) **istoimeni novi sveučilišni kolegij**
mogu ga upisati i biolozi
- (2) **aktualni antiznanstveni pokreti**
nerazumijevanje načina na koji znanost funkcionira
- (3) **znanstvena početnica za brucoše biologije**
jedan od povoda za pokretanje kolegija



znanstvena početnica za bruceše

J. Ellis, How Science Works: Evolution, Springer, 2010.



The Science of Everyday Thinking

Learn how to think better, argue better, and choose better.



online kolegij za sve zainteresirane

<https://www.edx.org/course/the-science-of-everyday-thinking>



The banner features a blue background with a yellow circular logo on the left containing three smaller circles and arrows. To the right of the logo, the text reads "Understanding Science" in large white font, with "how science really works" in a smaller white font below it. In the top right corner, there are links for "search | glossary | home". Below the main title, there are three yellow buttons with black text: "UNDERSTANDING SCIENCE 101", "FOR TEACHERS", and "RESOURCE LIBRARY". On the right side, a yellow button says "SUPPORT THIS PROJECT", followed by the text "Explore an interactive representation of the process of science." and a small inset image of a complex diagram with various colored circles and arrows.

Understanding Science
how science *really* works

UNDERSTANDING SCIENCE 101 FOR TEACHERS RESOURCE LIBRARY

SUPPORT THIS PROJECT

Explore an interactive representation of the process of science.

search | glossary | home



mrežne stranice za širu javnost

<https://undsci.berkeley.edu/>



Scientific Method (1 serving)

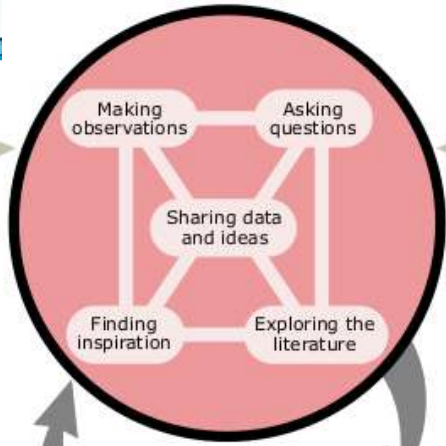
1. Ask a question.
2. Formulate a hypothesis.
3. Perform experiment.
4. Collect data.
5. Draw conclusions.

Bake until thoroughly cooked.

Garnish with additional observations.

Too simple!

EXPLORATION AND DISCOVERY



New technology
Practical problem
Curiosity

Personal motivation
Serendipity
Surprising observation

Gathering data

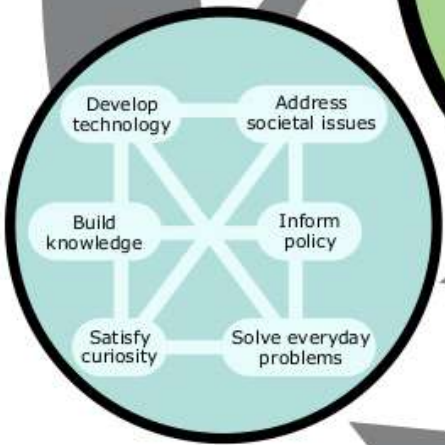
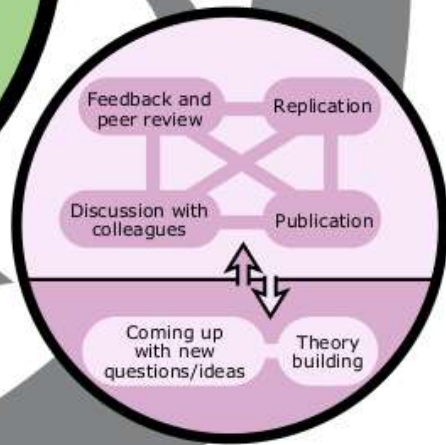
Hypotheses Expected results/observations Actual results/observations

Interpreting data

Supportive, contradictory, surprising or inconclusive data may...

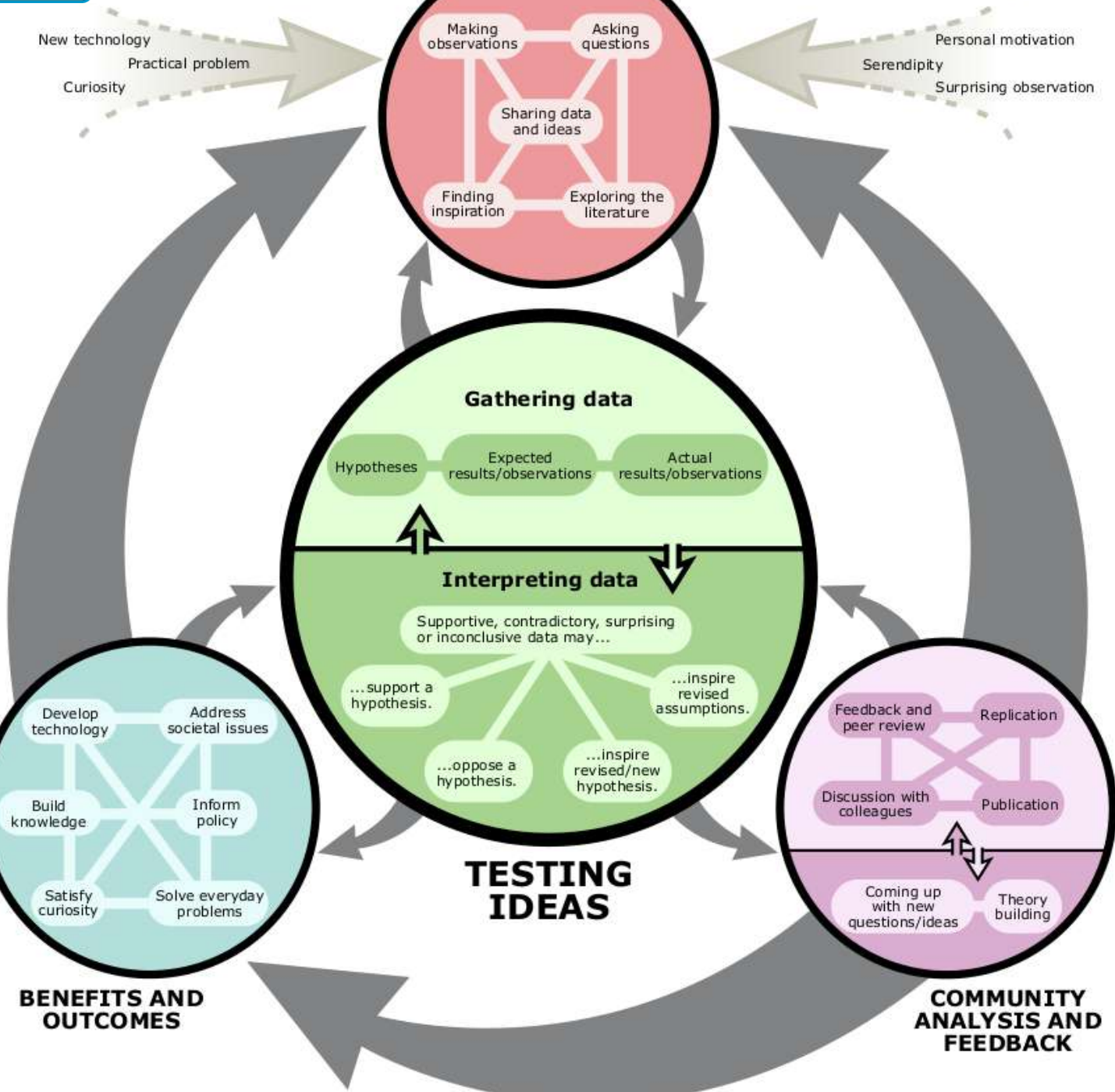
...support a hypothesis. ...inspire revised assumptions.
...oppose a hypothesis. ...inspire revised/new hypothesis.

TESTING IDEAS



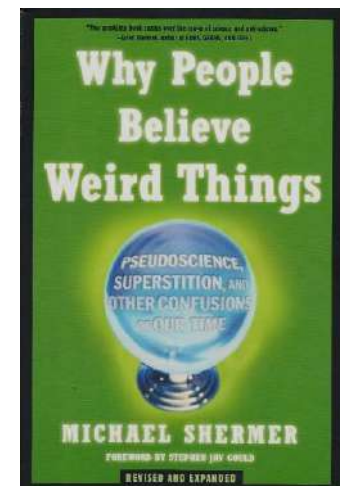
BENEFITS AND OUTCOMES

COMMUNITY ANALYSIS AND FEEDBACK



About this course

We will explore the psychology of our everyday thinking: why people believe weird things, how we form and change our opinions, why our expectations skew our judgments, and how we can make better decisions. We'll discuss and debate topics such as placebos, the paranormal, medicine, miracles, and more.

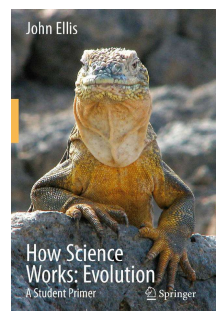


The Science of Everyday Thinking

Learn how to think better, argue better, and choose better.

What you'll learn

We will provide tools for how to think independently, how to be skeptical, and how to value data over personal experience. We will examine the mental shortcuts that people use and misuse, and apply this knowledge to help make better decisions, and improve critical thinking.



HOW SCIENCE WORKS

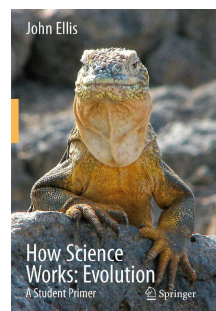
THE IMPORTANCE OF DEFINITIONS

FACTS in science are **empirical** observations available in principle to everyone. Facts can be inferred as well as direct.

HYPOTHESES are imaginary **but testable** speculations that might explain some facts.

THEORIES are coherent conceptual models that explain whole sets of facts and that **withstand falsifiable predictions**.

Good theories are quantitative, propose mechanisms, and lead to the discovery of new phenomena.



HOW SCIENCE WORKS

SUMMARY

Source: US National Academy of Sciences

1. Scientists pose, test and revise multiple hypotheses to explain what they observe in the natural world.
2. Scientists use only natural causes to explain natural observations.
3. Science does not prove or conclude; science is always a work in progress.
4. Science is neither democratic nor dogmatic.
5. Scientific claims are subject to peer review and replication.
6. Science is a human endeavour but it cannot make moral or aesthetic decisions.

