

The Craft of Research

Week 1: Introduction to Research Problems

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5/30/2024



Outline

- Course overview
- Research review
- Upcoming
- Reminders



Purpose of Craft of Research

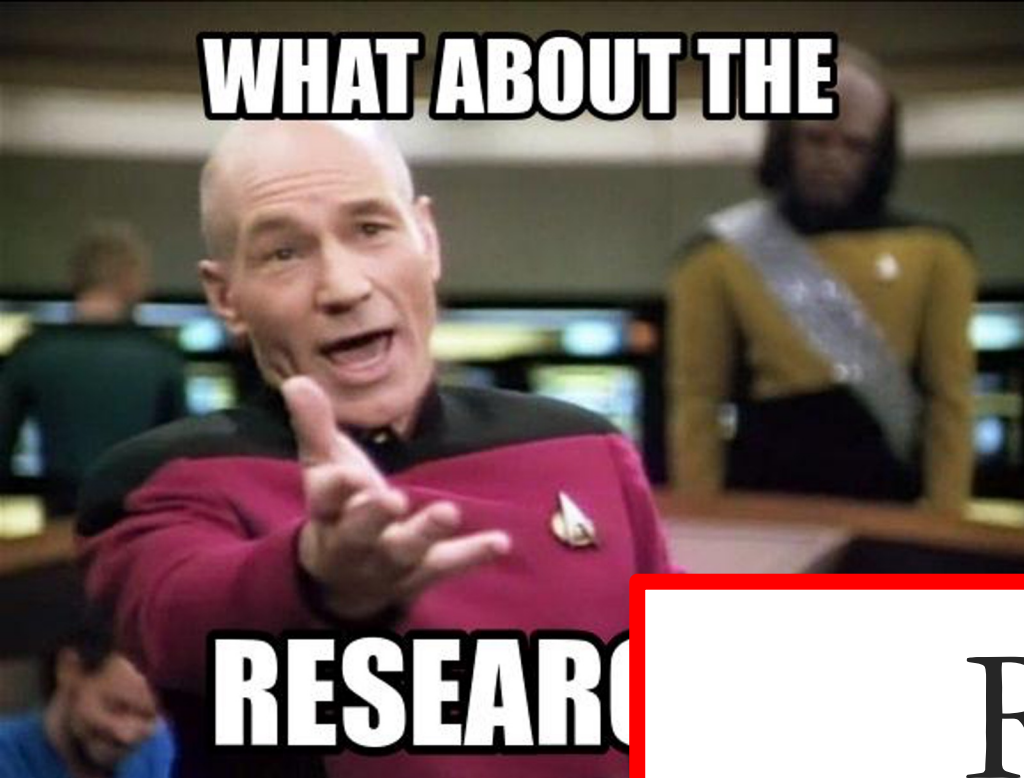
- Broad approach to your summer research
- Cover fundamental principles in research
- Prepare you for each milestone you will encounter
- Increase your comfort and awareness in research writing, reading, and presentations
- Provide resources and tools to successfully accomplish your goals this summer



What are your expectations for
this course?



WHAT ABOUT THE



RESEARCH



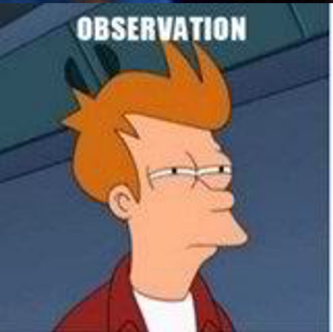
What is



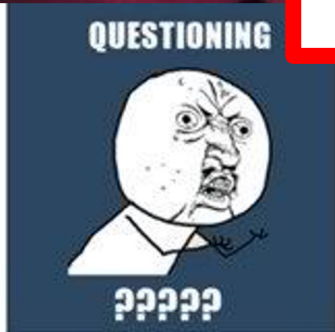
I HAVE NO IDEA WHAT I'M DOING

Doing Research

Research?



OBSERVATION



QUESTIONING

?????



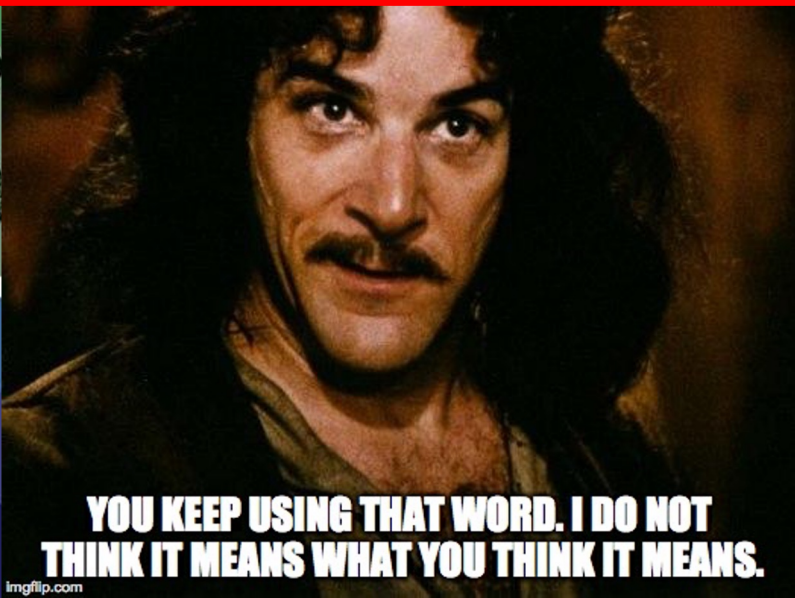
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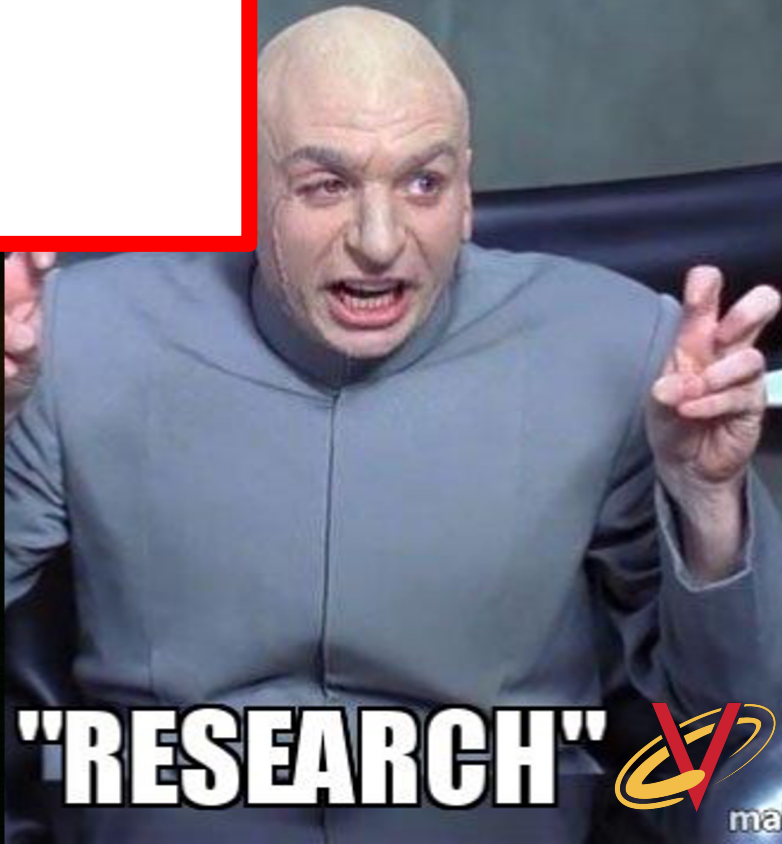
EXPERIMENT



RESULT



YOU KEEP USING THAT WORD. I DO NOT THINK IT MEANS WHAT YOU THINK IT MEANS.



"RESEARCH"



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Definitions

“A *systematic* investigation, including research development, testing, and evaluation designed to develop or contribute to *generalizable* knowledge.”

- <https://www.hhs.gov/ohrp/regulations-and-policy/regulations/45-cfr-46/index.html#46.102>

“We do research whenever we *gather information* to answer a question that *solves a problem.*”



Benefits of Research

- Helps you understand what you read
 - Critically consume information
- Discovery of how...
 - New knowledge depends on what questions you do and don't ask
 - Research shapes the questions you ask and how you answer them
 - Knowledge we rely on depends on the quality of the research
- Research writing to remember more accurately, understand better, and evaluate more objectively



A decorative border at the top of the slide features a variety of colorful icons related to education and science. These include books, lightbulbs, magnifying glasses, test tubes, bar charts, pie charts, a dollar sign, a laptop, a trophy, binoculars, an envelope, a clock, and a ribbon award. The icons are arranged in a repeating pattern on either side of a central white box with a yellow border.

Who is Involved?

Researchers

- Professional scientists/researchers
- Faculty and educators
- Post-docs
- Graduate students
- Undergraduate students

Who Pays

- Government
- Corporate institutions
- Foundations/non-profits
- Universities



Why do we Create and Consume Research?

Researchers

- I've found new and interesting information
- I've found a solution to an important practical problem
- I've found an answer to an important question

Consumers

- Entertain me
- Help me solve my practical problem
- Help me understand something better



Activity 1: Understanding Your Readers

1. Who will read your report?

- Academic professionals?
- Well-informed general readers?
- General readers who know little about the topic?

2. What do my readers expect me to do?

- Entertain them?
- Provide factual knowledge?
- Help them understand something better?
- Help them do something to solve a practical problem in the world?



Activity 1: Understanding Your Readers

3. How much can I expect them to know already?

- What do they know about my specific topic?
- Do they recognize the problem?
- Will I need to convince them the problem matters?

4. How will readers respond to the solution and or answer in my claim?

- Will it contradict what they already believe? How?
- Will they make standard arguments against my solution?
- Will they want to the steps that led me to the solution?



Any Questions?



Reminders

