The Craft of Research

Week 1: Introduction to Research Problems
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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 is Research?
Definitions

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


“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
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