Welcome to Pritzker Summer Research Program
University of Chicago
Some Thoughts on Covid-19

• Research is even more important than ever in the pandemic
• Our goal is to deliver a high quality experience with the constraints we have
• Much of what will happen is still unknown
• We appreciate your patience and faith in the process
• Let us know how we can help
Objective #1: Conduct research

- Prepare you to conduct mentored research projects
  - Mentor
    - Mentor’s staff and faculty collaborators
  - Cluster group leaders
  - Peers
    - Offer input on progress
    - Sounding board
Objective #2: Consider research career

- Learn what medical research career are like
  - Collaborative
    - Working on research teams
  - Deadline-driven
    - SRP deadlines on website
  - Creative but Unpredictable
    - Your hypothesis may change based on findings

Flexibility
- Work at your own pace
- Offsets medical practice
Role of the Mentor

• Critical piece of the SRP program
• Goal is to have productive working relationship
  – Find out the best way to interact with your mentor and the mentor’s team
• Facilitate the research you are doing
  – Responsible for specific “needs” related to you project (i.e. specific software, materials, etc.)
  – Sometimes hard to understand how it all fits together til the end…
Common Issues in SRP

• Mentor NOT available
  – Very common for “clinicians
  – Plan ahead
  – Find out who the other resources in the ‘lab’ are
  – Make it easy for them
    • phone, email, meet them in clinic/OR etc.
Objective #3: The Paper

• Provide a framework for scientific writing
  – Introduction
  – Methods
  – Results
  – Discussion

Caution: There may be seasoned writers & researchers in the room

Write a Research Paper
IMRaD

• Unlike a novel, newspaper article or an essay... a scientific paper has a required structure and style

• By international consensus "Introduction Methods Results and Discussion" or IMRaD

Introduction

• Opening line
  – Start broad with something that interests your audience “the hook”
  – But not too broad
    • “Sleep is a required biological function”
  – Could frame it as a problem with scope
    • “Sleep deprivation is a common problem worldwide”
Introduction

- **Routinely 2 to 3 paragraphs**
  - Think about the 3 main items that someone needs to know to understand your aim
  - Create topic sentences for each paragraph carefully that introduce the next idea
    - Need good ‘flow’
    - Transition words and phrases between ideas
Transitions Words

Similar idea
• In addition
• Furthermore
• Moreover
• also
• Likewise
• Similarly
• As a result
• For example

Opposite idea
• However
• Nevertheless
• In contrast
• Regardless

Monitor frequency of use to avoid overusing same word to start sentences
WHAT IS NOVEL????
Create tension or ‘gap’

- Given that other studies have taken place, why is your study needed
- Highlight potential links to therapy, policy, scientific discovery

“To date, no study has explored…”
“Currently, it is unclear…”
Pitfalls of Introduction

- Too long
- Reference rehash or overload
- Not making the case for the study – WHY?
- Jargon or abbreviations not explained
- Too broad
- Poor flow
Strategic References

• Avoid “reference rehash”
  – “Chang et al showed X. Towle et al demonstrated Y. Boone et al demonstrated Z.”
  – OK to do this for 1-2 landmark studies

• Goal is to synthesize prior work
  – “Prior studies have showed…”
  – “Some studies showed that X…. In contrast, other studies showed Z.”
Aim and Hypothesis

• End of the introduction

• The specific aim of this paper is to...

• We hypothesize that...
  – What is a hypothesis?
# Characteristics of a good hypothesis

<table>
<thead>
<tr>
<th>Properties</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Educated” guess</td>
<td>“Educated” – grounded in literature review or anecdotal experience</td>
</tr>
<tr>
<td>Distinct relationship between variables</td>
<td>Magnitude (double, triple, 10% etc.) Direction (increase, decrease, etc.)</td>
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<tr>
<td>Testable</td>
<td>One can visualize the experiment</td>
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Good Hypothesis?

• Medical students with a good summer research experience will enter different careers than those who have a bad summer research experience
Better Hypothesis?

• Pritzker medical students who report high satisfaction with the Summer Research Program will be MORE LIKELY to pursue research careers than those Pritzker students who report low satisfaction with the Summer Research Program
Even Better Hypothesis?

• Pritzker medical students who are report high satisfaction with the Summer Research Program will be TWICE AS LIKELY to pursue research careers than those Pritzker students who report low satisfaction with the Summer Research Program.
How Most People Read Journals

• Read Title
• Read Intro (first few lines) to decide to read further
• Look at figures/tables to see if they can get the gist of your work
• Read conclusion

But, reviewers do not read this way!
Neither do those “looking for your article”
Uploading Assignments

- [http://srp.uchicago.edu](http://srp.uchicago.edu)
To complete Spring

- Upload bibliography/reference
- Upload hypothesis
- Upload introduction

- (first 3 assignments of SRP!)