The research process

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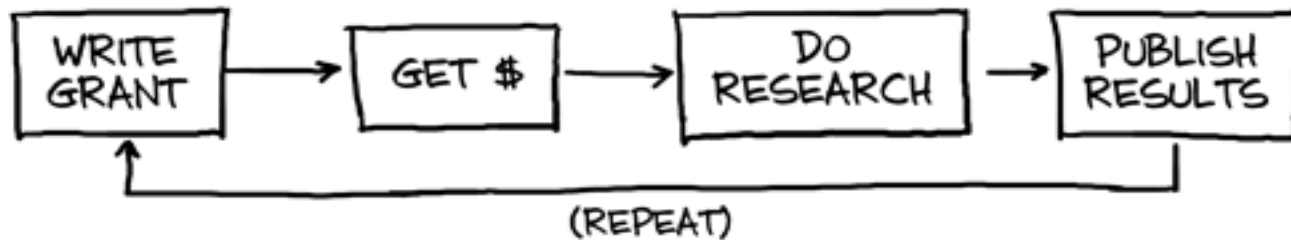
The Research Cycle

Credit: www.phdcomics.com

Proposal discussion

- Writing a good proposal is an art.
  - There is no right or wrong answers. Every scientist has their own preference.
  - It is always helpful to put yourself in your audiences' (the review panel's) shoes.
- You will start writing the science rationale part of your proposal this week. Your conclusion in this proposal discussion will help you create your own proposal.

Proposal discussion

- **30 min** for each proposal
  - First 10 min: summary of the proposal
    - If you have questions for the proposal, now is the time to bring up and discuss.
  - Next 15 min: discuss the strengths and weaknesses.
  - Last 5 min: grade the proposal
    - write it on the little piece of paper.
- I will be your panel assistant - write note of the discussion in the projected google doc:
  - https://docs.google.com/document/d/1VQ09xdnLE3XRD5KI47wNU6Xu27mRO29ggcxw8Dh6pjc/edit (Proposal 1)
  - https://docs.google.com/document/d/1bcP96HNK-gKlDanfBcIQXWOVGRfnmNtiav0zw9fNv0g/edit (Proposal 2)
- You need to come in a conclusion in 30 min, everybody will sign off the report at the end of the class.

Proposal evaluation criteria

✧ The most important criteria should be science

- Is the science proposed in this project important?
- Is the proposed project tightly related to the Swift mission?
- Is the project doable in the proposed timeline?
- Does the proposal clearly explain the scientific motivation and the adopted methods of this project?
- (bonus) Is the proposed project timely? That is, is the project better to be done now than in a few years?
- Is the budget arrangement reasonable?

Real review reports

- https://drive.google.com/file/d/0B8-8OgtnSJ08VjllQnJ4NUNqZW8/view?usp=sharing (proposal 1)

- https://drive.google.com/file/d/0B8-8OgtnSJ08Z0F0d240eGxScms/view?usp=sharing (proposal 2)

- Do you agree with the reports?

What is a good proposal?
(Class' note)

- Clearly written
- State the goal clearly – should have no confusion of what the purpose is
- Related in science goal of the proposed program
- Concise, straight to the point.
- State time scale
- Good methodology – demonstrate the method works
- Good background review

What is a good proposal?
(Amy's note)

- Clearly explain the science rationale and methods, so that non-expert can easily understand.
    - Within page limit, no typos or grammar errors, not using too many acronyms, including clear figures.

- Scientifically important – provide novel methods

- Clearly explain the goal of this proposal.

- Doable in the proposed time and budget.

- Related to the proposing program (e.g., need to relate to Swift if proposing to Swift Guest Investigator Program)

- Timely research, has to be done ASAP.

What to avoid when writing a proposal? (Class' note)

- Jargons
- Unclear methods
- Unclear goals
- Not-convincing science.
- Not including things that are irrelevant to your goal.
- Too much background and too few about the actual proposal.
- Not enough background to show the proposer has good knowledge of the field.

What to avoid when writing a proposal? (Amy's note)

- Too many jargons

- Unclear goal

- Unclear methods

- Not-convincing science

- Not-convincing method

- Mistakes in their science or method