Discussion of reading 7: Overview and Objectives

• The grant application writer's workbook NSF Fastlane Version:
  - Chapter 7: Overview and objectives (bulleted outline)
  - Page 57: Example of an overview and objectives section
Class activity

• Write a bulleted outline of your “overview and objectives” section (note that you only need to write bullet points, not whole sentences!)

• Read your neighbor’s outline and critique (positives and negatives)

• Share with the class one bullet that worked well or that you had trouble with

• Optional: finish your outline at home and send it to Prof. O’Gorman for feedback
Next week: “Research plan” and “Broader impacts”
The “Research Plan” section should be written next after the “Overview and Objectives”

The recommended format for the 15-page Project Description of a standard grant is:

1. Overview and Objectives
2. Intellectual Merit
3. Background:
   - Review of Relevant Literature
   - Results From Prior NSF Support
   - Preliminary Studies
4. Relation to Other Work In Progress:
   - By the Principal Investigator
   - By Investigators Elsewhere
5. Research Plan:
   - Develop each Specific Aim
     o Introduction
     o Research Design
     o Expected Outcomes
     o Potential Problems and Alternative Approaches
   - Timetable
6. Broader Impacts

Source: Grant Application Writer's Handbook, Page 40
Research plan

Introductory sentence

Specific Aim 1: Title

1.1 Introduction
1.2 Research Design
  1.2.1 Study 1 (heading)
  1.2.2 Study 2 (heading)
  1.2.3 etc.
1.3 Expected outcomes
1.4 Potential problems and alternative approaches

Specific Aim 2: Title

2.1 Introduction

etc.

Timetable

Source: Grant Application Writer's Handbook
Comparing Broader Impact outreach activities

The Broader Impacts Impact Framework (BIIF) consists of five straightforward categories of characteristics that scientists should carefully consider when evaluating the potential for success of their BI outreach activities. These categories are: who, why, what, how, and with whom.

**Who is the audience?** Descriptions of BI activities in proposals should define a target audience and be as specific as possible. When it comes to potential for “impact”, all audiences are not equal. Proposers should be prepared to defend their choice of audience and state why that audience is the most important one to reach because they are the most likely to use and spread the science-generated information.

Evidence suggests that, to have the greatest effect regardless of activity type, PIs should focus their outreach efforts on so-called “gatekeepers” or “opinion leaders”, individuals or institutions that exert the most influence and therefore have the greatest potential to affect policies and practices, spread a scientific message, or serve as a trusted conduit for some call to action (Heberlein 2012; Clayton et al. 2013). Gatekeeping/opinion-leading audiences – including policy makers, community program administrators, educators at informal learning centers, religious leaders, teachers, and wildlife managers – are perhaps in the best position to make use of information that is disseminated by scientists, and can serve as trusted, familiar conduits for a message (Khalil and Ardoin 2011; Purcell et al. 2012; Trautmann et al. 2012; Jordan et al. 2013). After all, how people receive and use information depends on how much they trust the source, and personal communication among individuals in social networks remains a primary vehicle for messages and for recruiting people into activities or ways of thinking (Besley et al. 2008; Cronje et al. 2011; Chu et al. 2012).

**How could this idea be used during proposal preparation and peer review?** Returning to the hypothetical example of the three competing BI activities (Table 2a), we must first keep in mind that the “best” audience for a dissemination activity depends on what that activity is trying to accomplish. So if, for example, the proposers’ aim is to promote conservation of bird habitats and the planting of fruiting shrubs that many songbirds use during migration, in the context of a BIIF, a very strong BI section will identify a specific audience of gatekeepers or opinion leaders to whom the dissemination activity will be initially directed, while a weak BI section will not (Table 2a).

Figure 1. The NSF Broader Impacts criterion spans a range of activities and outcomes, typically arranged in five categories. (top) The length of each triangle corresponds to the relative popularity of each category among NSF proposals (NSB 2011). (bottom) Despite the categories’ apparent differences, NSF (2007) provided examples, paraphrased here, for each category that relate to the guidance offered in this paper. Inset photograph: the author explains an ecological concept at a local conference.
Reading 8: Research plan and broader impacts

• Example research plan on pages 76-78 of “The Grant Application Writer's Workbook” (also look at the “Planned research” section of the example NSF proposal that was handed out earlier)

• Broader impacts:
  - “Writing a strong broader impacts statement” at https://www.lib.ncsu.edu/broader-impacts/writing
  - Examples from page 7-11 of “Perspective on broader impacts” (https://www.nsf.gov/od/iia/publications/Broader_Impacts.pdf)