

# Project management

IGERT PRODEV 2015

Jim Magnuson



*"Okay, that didn't work. But the important thing is that we're rapidly iterating toward a solution."*

# You are a project manager

- Do you do projects?
- You already do project management

# Intentional project management

- Maximize productivity
- Minimize wasted time, missed deadlines
- Avoid pitfalls (“pre-mortem” approach)

# Key principles: Preliminaries

1. Set clear, big-picture goals with goal date(s)
  - Do research project on X, and present results in Summer, 2016, and submit journal article by November, 2016
2. Before starting, assess feasibility
  - For us, this often means a literature search; might also include asking experts (advisor?); other possibilities?
  - Do you have the expertise, equipment, and any financial resources required?
  - Do you have IRB approval?

# Key principles once feasibility is confirmed

1. Create reverse timeline(s) from your big-picture goals
  - Begin by creating major subgoals with “ballpark” goal dates
  - How do you set goal dates? Principle from programming: make your most conservative estimate and then double it.
  - Adjust as needed to achieve big picture goals constrained by hard or aspirational deadlines
    1. 11/1/16: Incorporate collaborators’ suggestions (20 hours); submit journal article (2 hrs)
    2. 10/1/16: Send first draft to co-authors
    3. 8/1-9/30/16: Complete first draft (30 hours)
    4. 8/1/16: Finish data analysis (30 hours)
    5. 7/1/16: Finish data collection (2 hours x desired n; how many Ss can you run / week?)
    6. 2/1/16: Begin data collection
    7. 1/25/16: Finish analyzing pilot data; make any necessary changes to experiment (20 hrs)
    8. 1/1 - 1/15/16: Collect pilot data from 3 subjects (6 hours)
    9. 12/1/15-1/1/16: Implement experiment, debug, etc. (20 hours)
    10. 12/10/15: Develop and submit IRB protocol (3 hours)
    11. 12/1/15: Finish revising experiment based on advisor feedback (10 hours)
    12. 11/15/15: Finish draft of design document (6 hours)
    - 13. 11/10/15: Make project management plan, beginning with reverse timeline! (1 hour)**

# Key principles once feasibility is confirmed

## 2. Pre-mortem / risk assessment

- What could go wrong at each step?
  - Set goals based on a compromise of best- and worst-case scenarios
8. 1/1 - 1/15/16: Collect pilot data from 3 subjects [Will you have to recruit from normal sources? Can you run true pilot Ss, e.g., lab mates (check with advisor)? What if no one is around?]
  9. 12/1/15-1/1/16: Implement experiment, debug, etc. [Do you know how to use the expt'l control software? Have you allowed time for unanticipated complications, such as getting audio to work?]
  10. 12/1/15: Finish revising experiment based on advisor feedback [What if advisor is hard to meet with? What if advisor recommends huge changes? Is there enough slack in the schedule to accommodate?]
  11. Develop and submit IRB protocol [When are panel review dates? If rejected, do you have plenty of time to revise and resubmit before your goal date to start data collection?]
  12. 11/15/15: Finish draft of design document [How can you do this so quickly given upcoming movie releases??]
  13. **11/10/15: Make project management plan, beginning with reverse timeline!**

# Key principles once feasibility is confirmed

3. Break each subgoal down until you have manageable “bite-size” pieces (or Pomodoro-size [25 minute] pieces)
  9. 12/1/15-1/1/16: Implement experiment, debug, etc. (20 hours)
    - 12/1: Ask around for similar script (15 minutes)
    - 12/1: Record materials (2 hours)
    - 12/1-5: Edit materials (4 hours)
    - 12/5-10: Implement experiment / adapt existing script, incorporate new materials (6 hours)
    - 12/10-1/1: Debug / run self / examine data to be sure it has all needed codes and is analyzable, etc. (8 hours)
  10. 12/10/15: Develop and submit IRB protocol (3 hours)
    - 12/5: Download form and review instructions (30 minutes)
    - 12/5: Fill out form (1.5 hours)
    - 12/5-10: Send to advisor; send follow-up emails as needed to get approval/signature or assurance that PI has submitted form (30 minutes total)
  11. 12/1/15: Finish revising experiment based on advisor feedback (10 hours)
    - Schedule meeting with advisor (15 minutes?) by
    - Prepare for meeting (1 hour?)
    - Meet with advisor (1 hour)
    - Revise design (2 hours)
    - Rinse and repeat until done (2 revisions? 3?)
  12. 11/15/15: Finish draft of design document (6 hours)
    - 11/8: Literature search (2 months in the lab can save you 2 hours in the library) (2 hours?)
    - 11/9: Generate items (1 hour)
    - 11/10: Calculate relevant variables and create balanced / equated sets for different conditions (2 hours)
    - 11/12: Write design document (like an extended methods section, with addition of motivation/logic preamble) (3 hours)
  13. **11/10/15: Make project management plan, beginning with reverse timeline!**

## S\_ \_ \_ \_ happens: managing change

- Nearly inevitable that things will happen that you do not anticipate
  - Ss don't show up
  - Equipment breaks
  - You get sick
- How will you manage change? You need to be ready either to increase effort to get back on track (if you have hard deadlines or strong aspirational deadlines) *or* you need to revise all following steps



# Project management is time management

- Principles from last week
  - Manageable pieces rather than monolithic goals
  - Ideally break into tasks you can divide into short tasks
  - By having a list of goals and subgoals with time estimates by them, you can maximize productivity
    - Maybe the next thing in your plan will take 3 hours total – can you do it in 30-minute chunks?
    - If not, look down the list – is there a task for a later subgoal you can get out of the way?
  - Protect your time by scheduling it! Don't be flexible – stay firm that you are already scheduled
  - Motivate yourself with rewards
  - Motivate yourself with public goals – or at least make promises to your advisor / team members!
  - Automate to motivate: use calendar tools to send yourself reminders well in advance of upcoming deadlines

# Managing a team

- So far, principles apply to a team of 1
- You can apply them to yourself when you are a team member, even of an “unmanaged” team (putting out fires model)

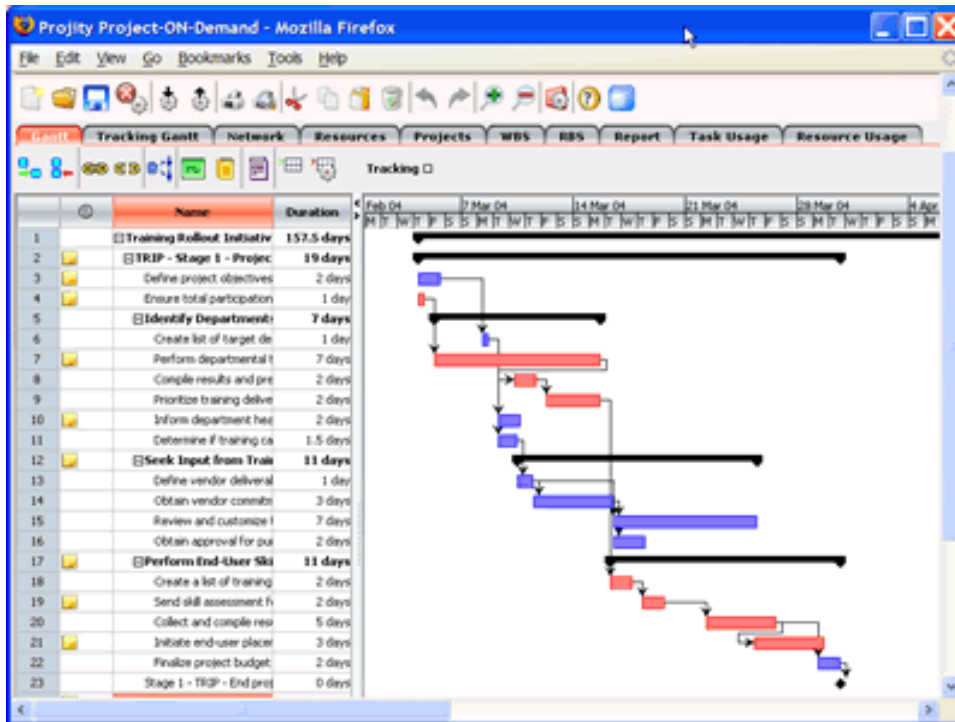


# Managing a team

- What if you have a lab? What if you are managing 1 or more team members?
  - Model 1: Islands
    - Give each team member his/her own todo list and project plan
  - Model 2: Village
    - Share all plans with all team members
    - Make clear who is responsible for what
    - Make it clear when/how team progress depends on individual progress
      - But without leading to a “Charlie Brown” model – a culture where individuals are blamed for delays
      - Instead, you need a culture where everyone understands the threats to progress (s\_\_\_\_\_ happens) and is ready to work together to manage change

# Managing a team: Tools

- Various free and commercial products for project management
  - Google sites has a simple site template for project management
- Basic principles:
  - Clear hierarchy of goals
  - Clear subtasks and reasonable deadlines
  - Clear assignment of responsibility
  - Team members need authority and resources for each of their tasks



The screenshot shows a corporate intranet template. The header is dark red with the text "Corp Intranet template" and a search bar. The main content area is white and contains a navigation menu on the left, a main content area, and a sidebar on the right. The navigation menu includes links for Home, Benefits, Company calendar, Departments, General information, Internal news, and Sitemap. The main content area features a "Welcome to our Intranet" message, a "Sample post" with a large number "1", and a "Company mission" section. The sidebar on the right contains an "Upcoming events" calendar for the month of May, showing events from Monday, May 16 to Friday, May 20.

**Corp Intranet template**

Home

- Benefits
  - Example benefit
- Company calendar
- Departments
  - Sample Dept.
- General information
  - Communications
  - Food
  - New employees
- Internal news
- Sitemap

Welcome to our Intranet

Everything about our company, at your fingertips.

Tip: [How to post an announcement](#)

**Internal news**

**1** **Sample post** Just a sample post. Create your own using the "new post" button on the Company Blog page. You can delete this post via "More actions" -> "Delete page."  
Posted Oct 14, 2009 7:32 AM by Scott Johnston

Showing posts 1 - 1 of 1. [View more >](#)

**337**  
days since  
An event

**Template tips**  
[Learn more about working with templates.](#)

**Company mission**

Vivamus nulla purus, consequat eget consectetur sit amet, accumsan et est. In hac habitasse platea dictumst. Quisque mollis elementum viverra. Sed egestas justo sed libero vestibulum ut laculis justo aliquet. Maecenas tellus ante, ornare

**Upcoming events**

Today [<](#) [>](#) **Monday**

8:00am Another sample event

**Monday, May 16**

8:00am Another sample event

**Tuesday, May 17**

8:00am Another sample event

**Wednesday, May 18**

8:00am Another sample event

9:00am Sample event

**Thursday, May 19**

8:00am Another sample event

9:00am Example

**Friday, May 20**

Events shown in time zone: Pacific Time

[Google Calendar](#)

## Managing a team: Confirming progress

- Verbal reports are risky
- “At the bench” reports allow you to identify looming problems, provide more constructive feedback

# Motivating a team

- Add to your own todo list: checking progress, sending reminders well in advance of deadlines (to others and to yourself)
- Weakest motivation: extrinsic / authority (do this because I told you to)
- Strongest motivation: intrinsic – what *personal* goal can you set for each team member?

If you want to build a ship, don't drum up the people to gather wood, divide the work, and give orders. Instead, teach them to yearn for the vast and endless sea.

--- Antoine De Saint-Exupery,  
author of *The Little Prince*