I got this great idea!
What’s next?
Time to start preparing a proposal
You can deal with the devil if you are familiar with it!

Mechanics of proposal preparation
Three parts to NSF proposal preparation

• The main “Stuff”: NSF sees & values most

• The supplementary stuff: NSF takes notice

• Invisible stuff to NSF: Research Services

You must work with all three!

What if I am not writing for NSF?
First part of the NSF proposal

• The main “Stuff”: Research Project
  – Summary/abstract 1 page
  – Project description 15 pages
    • Introduction
    • Background
    • Preliminary data
    • Defined Objectives
    • Methods to be used and data analysis
    • Evaluation of outcome/ Significance of work
  – References cited 3-4 pages

Total about 20 pages
Exception: NSF Graduate Fellowship: 2 pages
Part Deux: Supplementary Stuff

- Cover page: 1 page (Title)
- Table of content: 1 page
- Biographical sketch: 2 pages (Brief CV)
- Collaborative letters: 2-3 pages (not support)
- Budget: # of years + 1 for justification (3+1)
- Current and pending support: 1-2 pages
- Facilities and Equipment: 1 page
- Suggested reviewers: 1 page (who not to include)

15 more pages!
Sequence of documents in the final proposal

- Cover page: 1 page (Title)
- Table of content: 1 page
- Summary: 1 page
- Description: 15 pages
- References: 2-3 pages
- Biographical sketch: 2 pages (Brief CV)
- Collaborative letters: 2-3 pages
- Budget: # of years + 1 for justification (3+ 1)
- Current and pending support: 1-2 pages
- Facilities and Equipment: 1 page
- Suggested reviewers: 1 page (not to include too)
Research Services: Paperwork

• Transmittal sheet: 5-6 pages
  – Duration? F & A rate? Subcontractor?
  – Budget? Cost share? By whom?
  – More Space? Unusual demands on facility?
  – Hazardous waste? Humans? Recombinant DNA?
    Live animals? What type of animal you will deal with?
  – Conflict of interest
  – Signatures: You, Co-PI, Chair, dean, AOR
Timetable for proposal preparation

- Some say you need a whole year!
- Minimum one month preparation!
- Golden mean 3-6 months
- Order:
  - Finish first part first. Keep time for Revision!
  - Then work on part 3 and submit to Research Services
  - Come back to fill forms for part 2
  - Combine 1 and 2. Submit to NSF via FASTLANE
(Switch to Internet for learning more from their demonstration site)
Only SRO can submit a proposal (Sponsored Research Office)

- You prepare files in MS word and upload
- Each file will automatically get converted to pdf
- Will be presented to you for approval
- Will be at your assigned home page
- You can change them, edit them
- Fill forms and they are converted too
- Finally when you say print entire proposal, it will give you one pdf file for your records.
- These pdf files are sent to reviewers and panel
How will we submit the proposals for this class?

- I have formed seven groups of 6-7 students.
- All assignments will be circulated among peers from your group.
- Everyone is expected to give input to each other via email. Collect all input to others in one email. Include me on the e-mailing list.
- Forms will be kept on my website. You download them, fill them up and submit to me by e-mail.
- The final proposal will be a single, collated document in the pdf format that will go to your peer group, outside evaluators and professors for grading.
How will proposals be evaluated?

• We will use the same two criteria that NSF uses (Read GPG).
  • Intellectual merit
    – How important for advancement of knowledge?
    – Qualification of PI and quality of proposal?
    – Creative and original concepts?
    – How well conceived and organized is this activity?
    – Sufficient resources available?
  • Broader impacts
    – Advance discovery and understanding
    – Can promote teaching and research integration
    – Diversity (gender, ethnicity, disability, geographical)
    – Infrastructure development
    – Dissemination of information obtained
    – What is the benefit to society?
Subject

Three topics

Select one topic

Come up with three ideas

Select one idea

Decide the NSF program you want to apply to
Assignment America!

• Write the specific NSF program you will apply to on the top
• Develop the first page of your actual proposal
• Narrow down from broad subject to one idea
• Excite your reader! Do not put jargons or explain them better at the first occurrence!
• What are your hypotheses?
• So what will be your specific objectives?
• Very briefly how will you achieve them? Methods?
• Write a few lines about significance of this work and how it will advance the field. Submit to me by email.
• Proposal is all about same message repeated cleverly!
The Scientist (1998)

- Significance: Will the study move the field forward? Novel, not mere confirmatory!
- Approach: Are the experiments sound and technically feasible?
- Innovation: Are your ideas creative/novel?
- You and your environment: Can YOU accomplish the goals given your training, resources, budget and collaborations?
Pearls of Wisdom
Jacob Kraicer

• Grantsmanship is the art of acquiring peer-reviewed research funding
• Good writing will not save bad idea but bad writing can kill good ones.
• Read instructions CAREFULLY and follow them EXACTLY!
• Make your proposal a joy to read!
Penn State’ top ten list
Office of Research Affairs

• In order to win, you have to play!
• Do your homework
• Learn to walk before you run
• Don’t let the tail wag the dog
• If it is worth doing, it is worth doing right
• He who has gold, rules
• Keep several irons in fire
• Don’t promise what you can not deliver
• Deliver what you promise
• Try, try and try again until you succeed
Have time on your side

Identify colleagues who could help
> generalists
> specialist

Formulate ideas

Read literature

Identify resources
> funding
> institute
> research services
> successful proposals
> criticism

Generate preliminary data
They can not read your mind!

• Think like a scientist
  – Define a problem
  – Ask questions
  – Formulate hypotheses
  – Design experiment
  – Plan for evaluation
  – Get rich!
Knowledge is the key!

- Know your funding agency
- Know your colleagues
- Know your topic
- Know yourself