

Sharing Session:

Research Proposal Workshop

Faculty of Civil & Environmental Engineering
@UTHM

18 March 2018

Materials

- Research Grants from MOHE
- Research Grants from MOSTI
- Industry & International Research Grants
- Writing winning research proposals

MOHE GRANTS



Source: RMC, Universiti Putra Malaysia

msj@upm.my

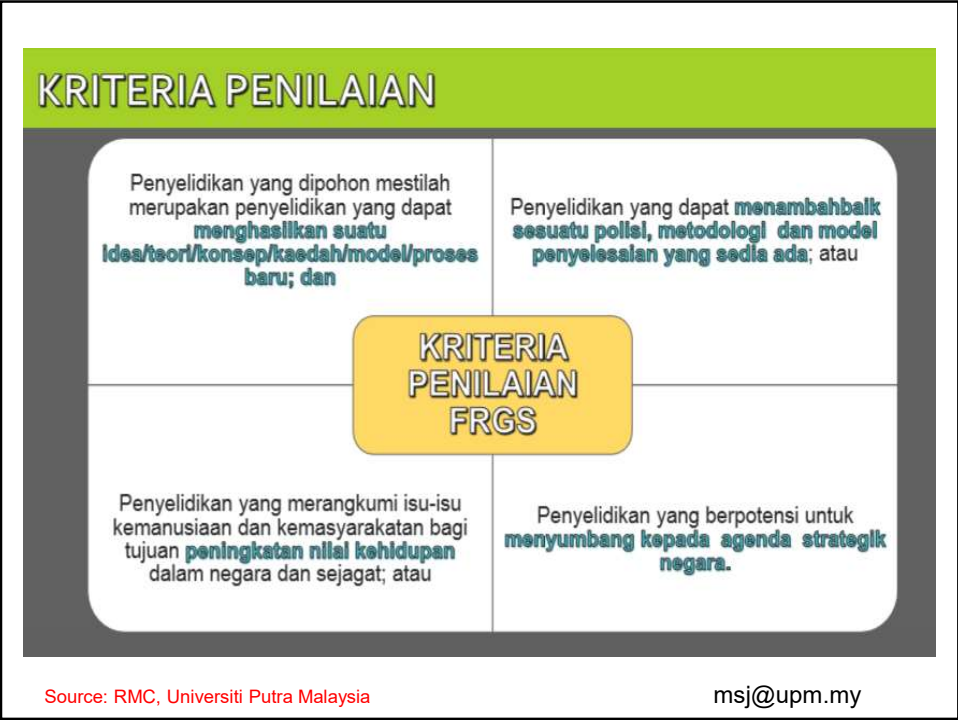
SYARAT PEMOHON

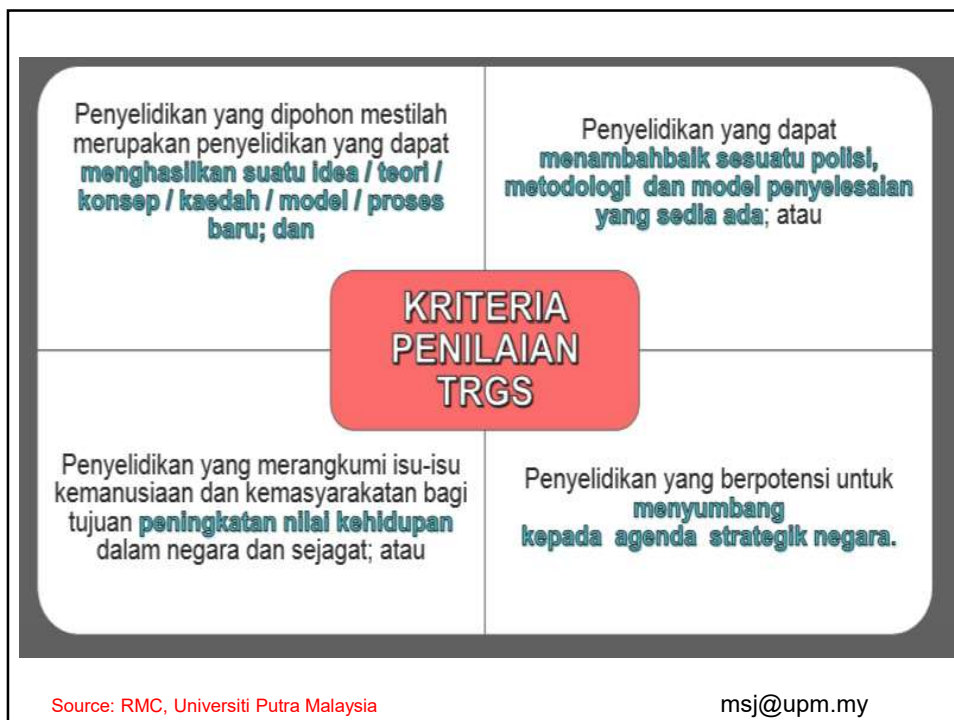
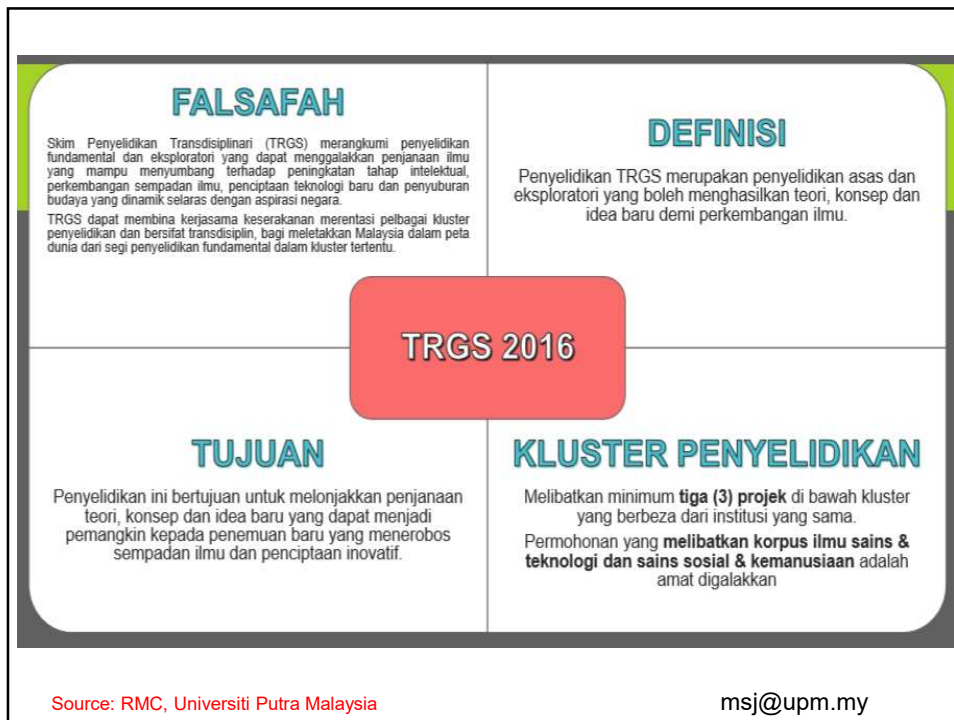
GERAN INI TERBUKA KEPADA KAKITANGAN AKADEMIK (PROFESOR, PROFESOR MADYA, PENSYARAH KANAN, PENSYARAH)

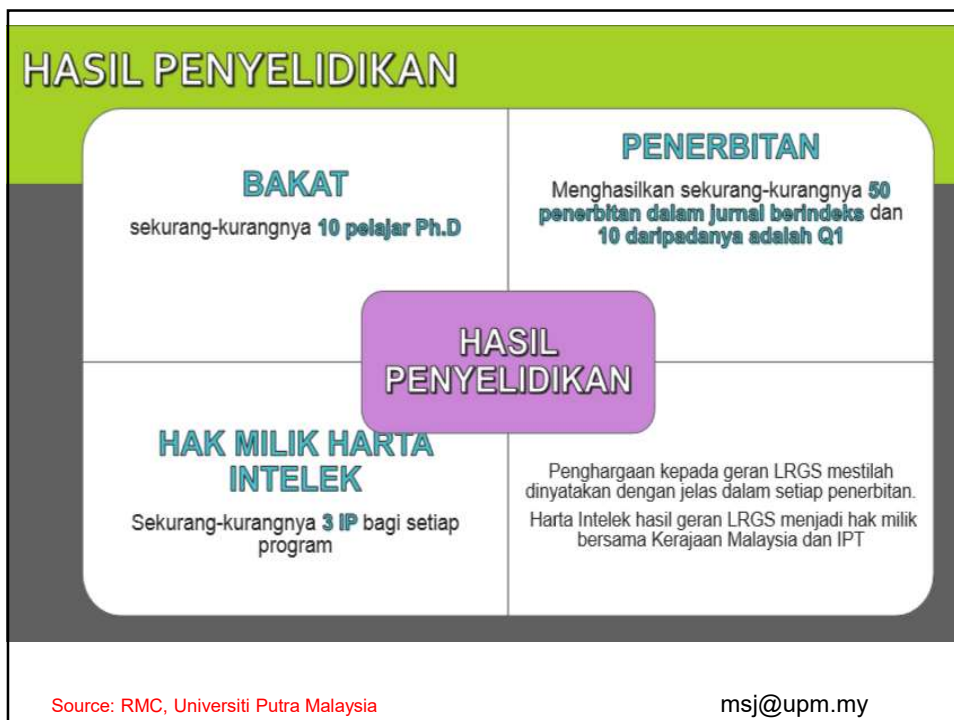
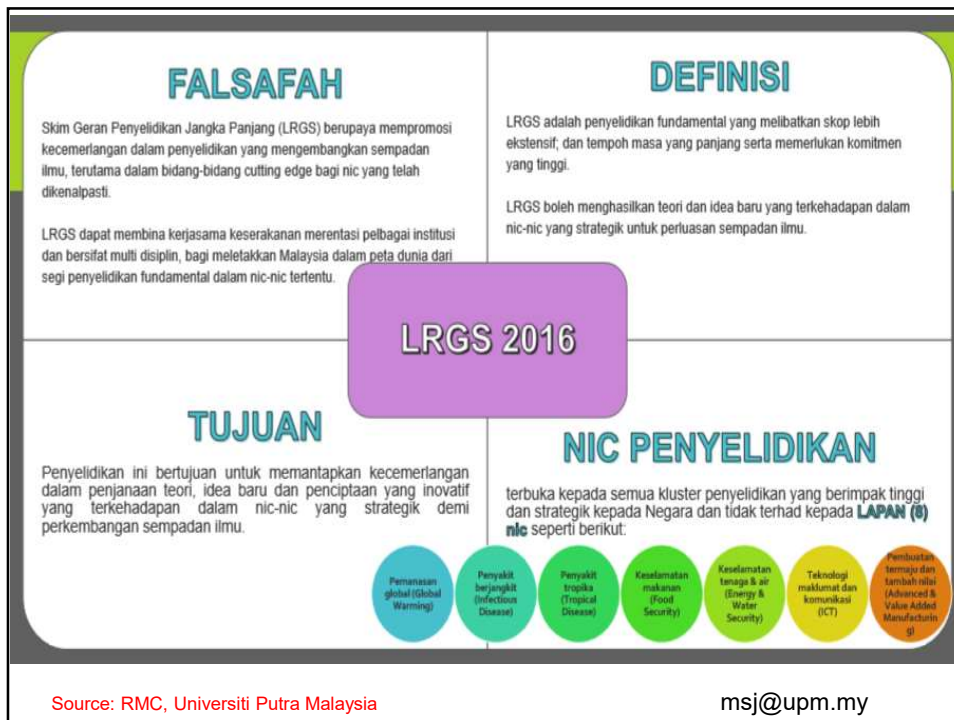


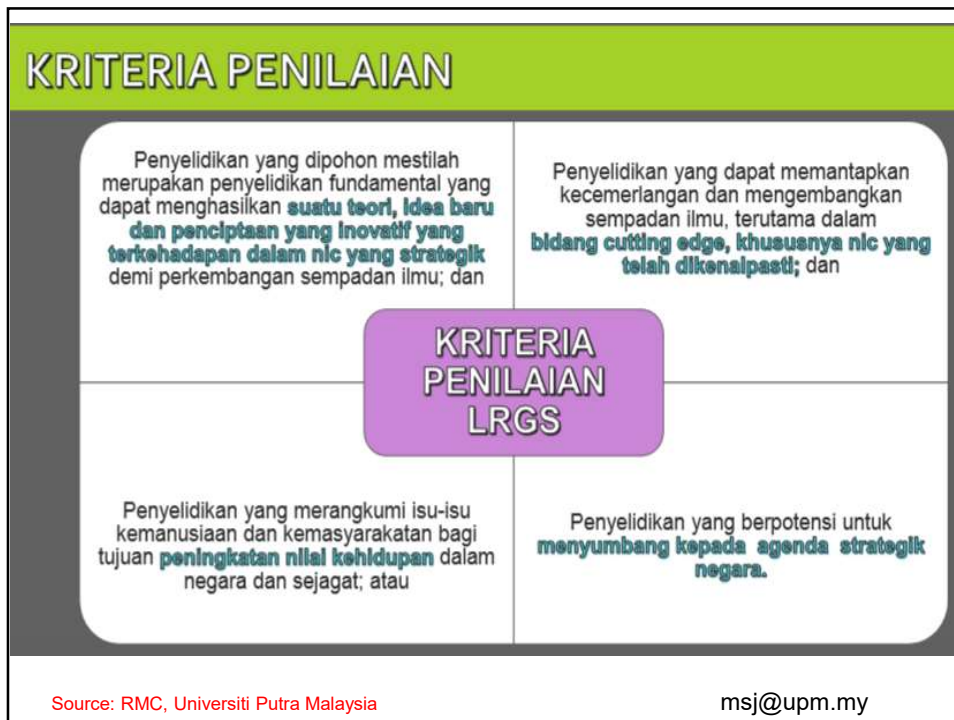
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RINGKASAN

PERKARA	FRGS	TRGS	LRGS	PRGS
<ul style="list-style-type: none"> SILING PERMOHONAN TEMPOH PENYELIDIKAN KPI 	<ul style="list-style-type: none"> RM250,000 1 hingga 3 tahun Projek 3 tahun; 1 Ph.D atau 2 Sarjana atau gabungan keduanya Projek 2 tahun; 1 pelajar Sarjana 2 penerbitan dalam jurnal berindeks / projek 	<ul style="list-style-type: none"> RM1,500,000 1 hingga 3 tahun 4 PhD, 8 Sarjana 8 penerbitan dalam jurnal berindeks dan 2 daripadanya adalah Q1 1 IP (per program) 	<ul style="list-style-type: none"> RM3,000,000 / tahun 3 hingga 5 tahun 10 PhD 50 penerbitan dalam jurnal berindeks dan 10 daripadanya adalah Q1 3 IP (per program) 	<ul style="list-style-type: none"> RM500,000 2 tahun 1 IP / projek

Source: RMC, Universiti Putra Malaysia

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MOSTI RESEARCH GRANTS

STI Excellence Through Demand Driven R&D Financing

Priority Research

- Solving national problems
- Societal Well-being

Strategic Research

- Identify Long term solution
- Economic Growth

Priority Areas

Medical & health care

Water, Food & energy nexus

Green growth for sustainable development

1 SMART Challenge fund

- Priority research
- Strategic Research

2 Gofund

- Innofund
- Facilitation Fund
- International Collaboration Fund

SMARTFund: an initiative to increase participation of public universities in Commercialization

- Precommercialization project that is highly innovative to spur economy and societal impact
- Open to business and researchers
- To solve national problems and identify long term solution
- Specific, measurable, achievable, realistic and timely

Strategic	Prioritized
To tackle strategic issues that will provide long term solution	To tackle prioritized issues that need immediate solution
Spur economic returns to the country	Improve societal well being
Technology Readiness Level 4	Technology Readiness Level 6
Max: RM 1mil	Max:RM 3mil
Duration: 24 Months	Duration: 24 Months

Technology Readiness Level (TRL)

Appendix 1

TRL	Description	Characterisation
1	Basic Principle	<ul style="list-style-type: none"> • Technology research • Pure science begins translation to R&D
2	Formulation of Concept	<ul style="list-style-type: none"> • Early studies for application formulation. • Invention & Practical Application Begins.
3	Experimental Proof of Concept	<ul style="list-style-type: none"> • Analytical validation & proof of concept • Start active research & development
4	Lab validation	<ul style="list-style-type: none"> • Validation in laboratory environment • Ready to begin bridge for technology transition
5	Validation in real environment	<ul style="list-style-type: none"> • Validation in relevant environment • Ready to enter technology development
6	Demonstration in real environment	<ul style="list-style-type: none"> • Demonstrated in relevant environment • Ready to enter system development
7	Demonstration of prototype	<ul style="list-style-type: none"> • Demonstrated in operational environment • Ready for limited production decision
8	System complete and qualified	<ul style="list-style-type: none"> • Compliant, qualified & test/demo complete • Ready for operational evaluation
9	System proven	<ul style="list-style-type: none"> • Completed operational evaluation • Ready for full-rate

Source: Adapted from NASA TRL

Project Evaluation

Focuses on Sustainability, Relevance and Feasibility of the Project

Benefit/ Importance

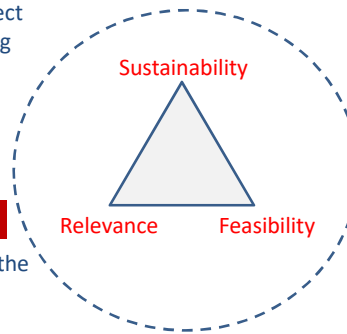
Identify benefits project can bring in generating economic growth and societal well being

Technology

Clarity in terms of objectives and output expected, technology readiness, compliance to regulatory/ ethical requirement, manufacturability etc

Project Management

Demonstrate ability of the team to successfully achieve the objectives, identifying and mitigating risks



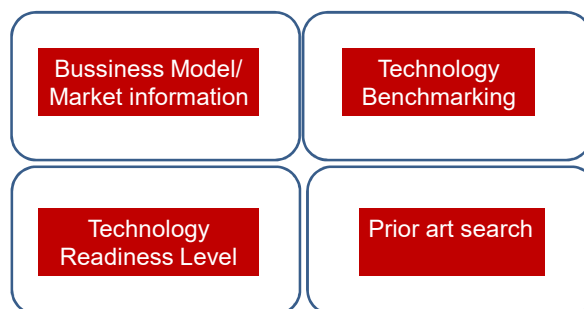
Commercialization Potential

Established understanding in relevant business model options, appropriateness of project in market potential, diffusion rate, compliance to standard etc

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Project Evaluation

Most common gaps revolve around technical and business information



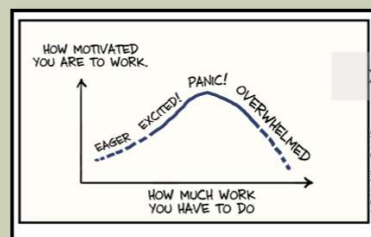
CRAFTING A WINNING RESEARCH PROPOSAL

GradGrants Center
Indiana University
October 22, 2015



OUTLINE

- Before you begin writing
- Customizing your proposal
- The genre of proposal writing
- ◀ ■ Organizing your proposal
- After the first draft
- Proposal-specific writing tips and mechanics
- More resources



BEFORE YOU BEGIN WRITING

- It's never too early to get started
 - Most **winning** proposals are started 3+ months prior to deadline
 - Summer and Winter Breaks should not be wasted!
 - Allow ample time to pass proposals to colleagues, advisors
 - Make a 5-year funding plan
- Letter writers
 - 6+ weeks notice
 - Provide proposal, CV, bullets of most important aspects of your skillset and what you want them to emphasize in the letter
- Set your own deadlines
 - Use stepping stones to break up the task
- Know word counts, eligibility, other specs before you start writing



GATHERING BACKGROUND INFO

- Who is funding the grant/fellowship?
 - Mission statements, key words
- What is the goal of this particular grant?
 - Expected results, types of candidates
- ◀ ■ What types of projects has the grant funded in the past? **Compare** ▶
 - Quantitative v. qualitative
 - Theory building v. policymaking
 - Which disciplines?
- What are the selection criteria?
 - Often links with mission statement
- Who reads the applications?
 - Know your audience



SALESMANSHIP

- Different grants, different pitches
- This is not the time to be modest. Talk yourself up!
- Are you qualified and competent enough to complete your project?
 - Previous training, languages, coursework, achievements, etc.
 - But not an annotated CV
- What is significant about the project? Why is it important?
 - Fills a hole in the literature, tests an important theory, a step to World Peace
 - Importance is relative. How is it important to funders?



EVERY PROPOSAL MUST SHOW

What will we learn as the result of the proposed project that we don't know now?

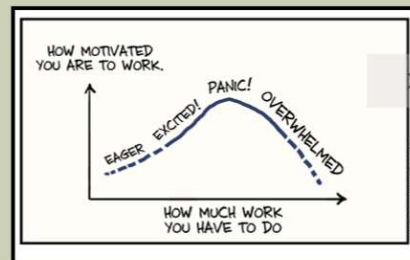
Why is it worth knowing?

How will we know that the conclusions are valid?

Why should you conduct the study, i.e. How have you prepared?

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ORGANIZING YOUR PROPOSAL

- Grabber
- Research objectives
- Research questions
- Methods
- Literature Review
- Expected results and broader impacts



THE GRABBER

- Grab the reader's attention
 - Provocative question based on central research question
 - Provocative problem/enigma
 - Provocative statistic
 - State your central point
 - Some combination of these
- The central idea/question should stick in the reader's mind hour later
- Put the what and why up front
 - Grants are funded on merit, not need, so a good proposal begins with a clear idea of the **goals and objectives of the project and why it is significant**

Workers do not organize unions; unions organize workers.

Population growth coupled with loss of arable land poses a threat to North African food security in the next decade.

RESEARCH QUESTIONS

- Avoid foregone conclusions
- Clear hypotheses
- Avoid a laundry list of Qs
- Numbered or bulleted, boldface or italicized
- Work with colleagues, advisors (good questions aren't born overnight)



LITERATURE REVIEW

- Not all grants require full literature reviews, but almost all will require you show knowledge of the field
 - Who else has asked similar questions?
 - What did they find, and what didn't they look into (which your work will)?
 - Tailor the lit review to your contributions (so shape the gaps)
- Again, tailor literature review to the funding agency
 - E.g. SSRC focuses on humanities-based social sciences (interdisciplinarity), and Wenner Gren on anthropological theory



METHODS

- Amount of detail depends on the specific grant
- Clarity
- **Explicitly** link methods and questions
 - i.e. why is this method the best way to answer your question?
 - Often good to refer back to the questions as you discuss methods
- Methods sections often include timelines
 - (e.g. "January–March, I will conduct semi-structured interviews with ...")
 - (Keep in mind you're not locked into this timeline)



DESIGN/METHODOLOGY

- Clear and well thought out
- Measurement
 - Survey research
 - Quantitative
 - Qualitative
 - (also, see Statistical Consultants here in SSRC!)
- Feasibility
 - Think carefully about feasibility; consider time frame, environment (e.g. internet access)
 - Funding agencies want you to succeed; be realistic



CONCLUSIONS/BROADER IMPACTS

- Why is the project important, again?
 - The “So, what?”
- Why is your project innovative?
 - Clarity important here. Funders want to know what they get out of investing in you
- (sometimes finish with:)
 - I will do X, Y and Z upon finishing my studies or after the grant period (proving your further worth)
- Impacts on your personal/professional trajectory
- impacts for the mission of the funder (and maybe also your field)
 - What is important (i.e. a broader impact) depends on the funder



THE GENRE OF PROPOSAL WRITING

- Get to the point quickly!
- Readability
 - Use boldface, italics, and anything to make the proposal easier to read
- Clear, confident, & specific statements (avoid conditionals)
- Always keep guidelines in mind
- A good proposal is always readable, well-organized, grammatically correct, and understandable
- Be explicit about time frame of your project
 - Often tables can be handy and save space
- Be explicit about outcomes, and how you will measure success



PROPOSAL GRAMMAR

- Repetition
 - Use space wisely, but it's also important to reiterate your main objective/question and why it's important
 - Make the proposal read like a package
- Self referential
- Read aloud
- Proposal specific grammar
 - Sentences <25 words unless you have a direct quote or serial commas
 - No passive voice unless absolutely necessary
 - No contractions
 - try to avoid repeated "I + verb" constructions, especially as lead sentence of paragraph.
 - Consistency with verb tense, and avoid conditional
 - Avoid forms of the verb "to be"

CONFIDENT PROSE

Instead of conditionals like
can, could,
would, hope to

Use strong verbs
of intent like
plan, envision,
imagine, seek to

I would like to
attend the
Summer
Language
Workshop

By attending
the Summer
Language
Workshop, I will

ACTIVE VERBS

- Identify
- Assess
- Contrast
- Apply
- Examine
- Employ
- Illustrate
- Debate
- Integrate
- Predict
- Suggest
- Measure
- Distinguish
- Infer
- Synthesize
- Differentiate
- Translate
- Revise
- Generalize
- Evaluate
- Appraise
- Compose
- Collect
- Complete
- Deduce
- More **here**
and **here** and **here**
- Estimated
- Gathered
- Instructed
- Assembled
- Detected
- Created
- Initiated
- Illustrated
- Guided
- Classified
- Compiled
- Critiqued
- Generated
- Hypothesized

ELICIT FEEDBACK

- Circulate your proposal for feedback
 - Colleagues, advisors, friends, GGC, past winners of this fellowship. Choose readers in accordance with particular grant (e.g. NSF v. Fulbright)
 - Allot 5+ weeks for longer proposals (especially during summer)
- 5-6 drafts
- Try explaining (verbally) what the project will do/accomplish and why it's important
- Critical feedback is *good* feedback



Thank You



Special thanks to all the resource persons and resources where these materials are obtained