

KPA/GSC Grant Writing Workshop
Hemisphere Room, 5th Floor Hale Library

Day 1 – Wednesday, February 16, 1-4pm

Topic	Presenter	Time Allotted
Welcome	Dr. Beth Montelone, Senior Associate Vice President for Research, Office of Research and Sponsored Programs	10 minutes 1:00-1:10
Terminology and Acronyms	Adassa Roe, Grants and Contracts Administrator, Office of PreAward Services	20 minutes 1:10-1:30
Process of Grant Writing at Universities	Amy Brusk, Grant Specialist, College of Veterinary Medicine	20 minutes 1:30-1:50
Data and Publication Accessibility, including Data Management Plans	Rebel Cummings-Sauls, Director, Center for the Advancement of Digital Scholarship	20 minutes 1:50-2:10
Rules of Grant Writing	Mary Lou Marino, Development Director, Office of Research and Sponsored Programs	50 minutes 2:10-3:00
Budget and Budget Justification	Terri Fayle, Research Operations Manager, College of Agriculture/K-State Research and Extension	1 hour 3:00-4:00

Day 2 – Thursday, February 17, 2-5pm


Topic	Presenter	Time Allotted
Review Criteria and Evaluation	Dr. Mary Rezac, Professor, Chemical Engineering	1 hour 2:00-3:00
Developing your Objectives and Goals; Writing the Narrative and Project Summary	Teresa Merrick and friends, The Writing Center	2 hours 3:00-5:00



Terminology & Acronyms



Adassa Roe, CRA
Grant and Contract Administrator
PreAward Services
Office of the Vice President for Research





Life-Cycle of a Project

- Pre-Award:
 - Facilitated by PreAward Services, Office of Sponsored Research, Department(s) and Researcher(s)
- Post-Award:
 - Facilitated by Division of Financial Services- Sponsored Projects (SPA), Department(s) and Researcher(s)



Call for Proposals

- Guidelines/Funding Opportunity Announcement
 - Sponsor's proposal requirements
 - The criteria for which proposals should be written
 - Includes due date or submission window for application
- RFP/RFA
 - Request for Proposals/Applications
 - Sponsor's solicitation which includes guidelines on how to submit an application to their funding opportunity



Call for Proposals

- BAA
 - Broad Agency Announcement
 - Solicits applications in response to sponsor's general research interests or broadly-defined area of interest
 - Application window is often very lengthy with BAA's

Keep an eye out for resources like FAQ's–
these supplement the sponsor's guidelines!

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Who is Submitting?

- Applicant
 - Sometimes referred to as the Applicant Organization
 - Generally the entity, not the individual(s)
 - Be sure to use official address, federal applicant identifiers
<http://www.k-state.edu/research/faculty/proposal/prepare/>
- Principal Investigator (PI)
 - Lead Researcher, Project Director (PD)
 - Individual responsible for day-to-day project oversight
 - Typically one PI- remainder are Co-PIs

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Who Approves Applications?

- Authorized Organizational Representative (AOR)
 - The individual at the applicant organization who is authorized to submit or sign off on applications
- Some sponsors use the term Institutional Grants Officer (GO)
 - American Heart Association

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Common Application Terms

- Pre-Proposal/White Paper
 - Brief overview of the proposed project
 - May request budgetary info at this stage
 - Sponsors often use this application phase to invite selected applications to submit full proposals
- Letter of Intent (LOI)
 - Similar to Pre-Proposals, but in letter format

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Common Application Terms

- Full Proposal
 - Includes all requested application components
 - Varies greatly from sponsor to sponsor

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Application Components

Cover Page or Required Federal Forms

- Title
- PI Info
- Project Period
- Place of Performance

Project Summary/Abstract

- Summary of proposed project
- Written in third person
- Understandable to a technically literate lay reader

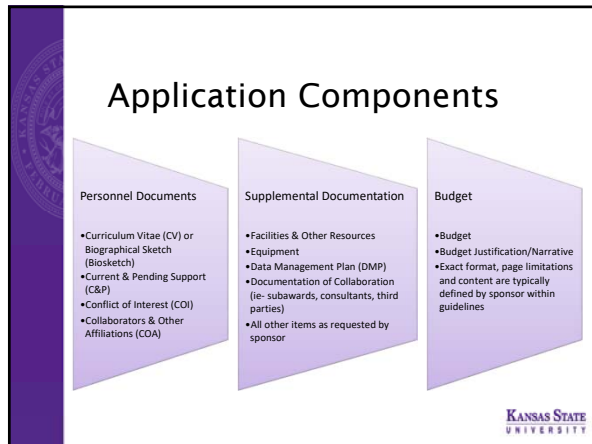
Project Narrative/ Project Description

- Majority of the application
- Subject to page limitations set forth by sponsor

Bibliography/ References Cited

- Most sponsors require name of all authors
- Do not use "et. al."

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Budgetary Definitions


- **Budget Period**
 - Timeframe in which you will use the funds that are requested
 - Most proposals are made up of 1-5 budget periods that each span 12 months in duration
 - Spending outside of this timeframe is typically not allowed

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Budgetary Definitions


- **Direct Costs**
 - Costs that are clearly identifiable for a specific project
- **Indirect Costs (IDC)**
 - Organization's operating expenses that can not be clearly tied to a specific project
 - Also called Facilities & Administrative (F&A) Costs or Overhead


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Budgetary Definitions


- Indirect Cost Rate
 - KSU has a negotiated rate agreement with the federal government that determines the percentage used to calculate IDC
 - <http://www.k-state.edu/research/faculty/proposal/budgets/f-a-rates.html>
- Unallowable Costs
 - Costs that can not be charged to the sponsored project
 - Federal projects are subject to the Administrative Requirements, Cost Principles, and Audit Requirements found in the OMB Circulars






Budgetary Definitions


- Cost-Share or Matching Funds
 - Financial contribution to the project by applicant organization or third parties
 - Cash (hard-dollar) or in-kind (tangible resources)
- Total Project Costs
 - Typically direct costs plus IDC
 - In the case where match is required, this would consist of sponsor requested funds plus applicant matching contribution





Budgetary Definitions

- Office of Management & Budget (OMB) Circulars
 - Location where federal grant management policies and regulations are housed
- Budget Justification
 - Written description that outlines the budgetary request
 - Should clearly show how totals were calculated for each line item







Award- Grant or Contract?

- Grant (award letter, agreement, MOU, etc.)
 - An award from a funding source which provides financial assistance to support a sponsored project, program or activity
- Contract
 - Mechanism for procurement of a service/goods
 - Dept. of Defense frequently deploys contracts


Often mixed signals- more about what the document **does** than how it is **labeled!**






Questions?

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 785.532.6804






Grant Proposal Process

Amy M. Brusk, MAB, CRA
Grant Specialist, College of
Veterinary Medicine

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Grant Proposal Process

- Research Support Offices
- Lifecycle of a Grant
- Finding Funding Opportunities
- Proposal Development
- New Award Received, Now What?
- Award Management
- Award Close-out

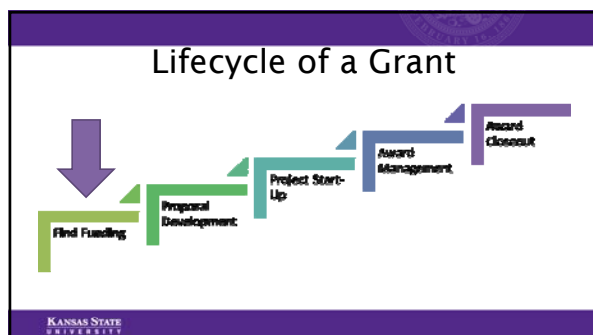
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Research Support Offices

- Office of the Vice President for Research
 - Office of Research and Sponsored Programs (ORSP)
 - 102 Fairchild Hall, 785-532-6195
 - PreAward Services (PAS)
 - 02 Fairchild Hall, 785-532-6804
 - University Research Compliance Office (URCO)
 - 203 Fairchild Hall, 785-532-3224
- Division of Financial Services
 - Sponsored Programs Accounting (SPA)
 - Suite 600, Unger Complex, 785-532-6207
- College/Departmental Research Administration Office

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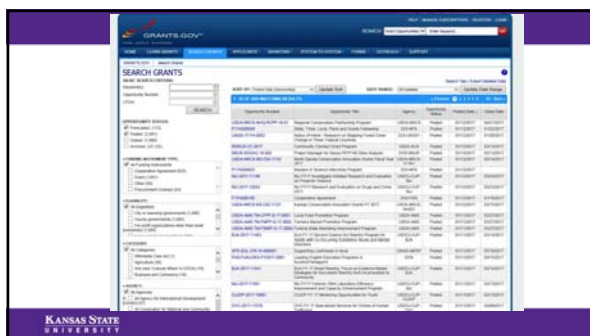


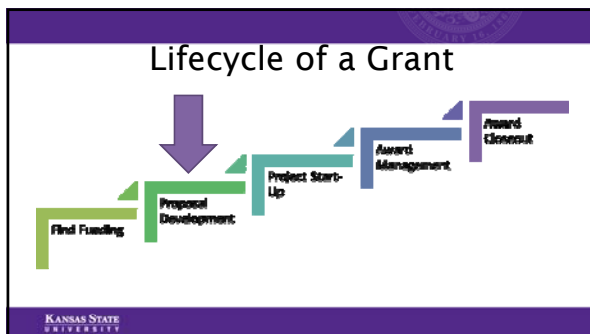
How to find Funding Opportunities

- <http://www.k-state.edu/research/faculty/funding>
- Funding Connection Newsletter
- Pivot Funding Opportunities Database
- Grants.gov
- Internal Grant Programs
- Industry connections
- Contact Grant Specialist/Pre Awards/Faculty Mentor

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Proposal Development

- KSU review and approval is required!
- Budget first!
 - Direct costs
 - Salary and benefits calculations
 - Indirect costs
 - 52% Research rate/44.5% AGR (USDA) rate
 - Use base of Modified Total Direct Costs (MTDC) to determine indirect costs
 - Inclusion of indirect costs is required, unless sponsor has a stated policy indicating otherwise (example: non-profits, foundations)
- Budget Justification

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Proposal Development

- Assembling proposal package:
 - Project Summary/Abstract
 - Project Narrative
 - Bibliography and References Cited
 - Facilities and Other Resources
 - Equipment
 - Investigator documents:
 - Biographical Sketch
 - Current and Pending List
 - Specific Aims
 - Research Strategy

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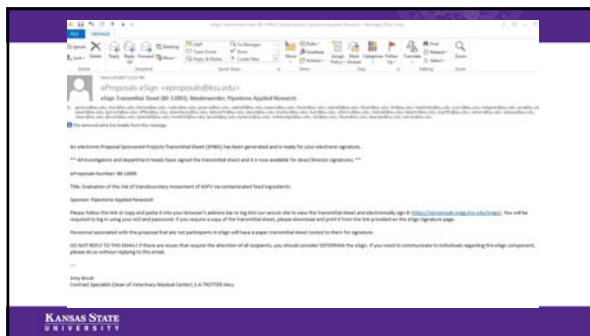
Proposal Development

- Assembling proposal package (cont'd):
 - Vertebrate Animals
 - Select Agent Research
 - Letters of Support
 - Resource Sharing Plan
 - Authentication of Key Biological and/or Chemical Resources
 - Data Management Plan

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Proposal Development

- Electronic internal approval system
 - eProposals eSign
- Electronic submission:
 - Cayuse
 - Federal proposals: NIH, USDA, etc
 - Fastlane
 - Several non-federal sponsors have their own



[illegible]

Kansas State University
Cayuser24/v7.3

Username:

Password:

[Get New Login ID and New Password? Click Here](#)

[Forgot password or locked out? Click Here](#)

[Need assistance? Contact your CRES Server](#)

[Login](#)

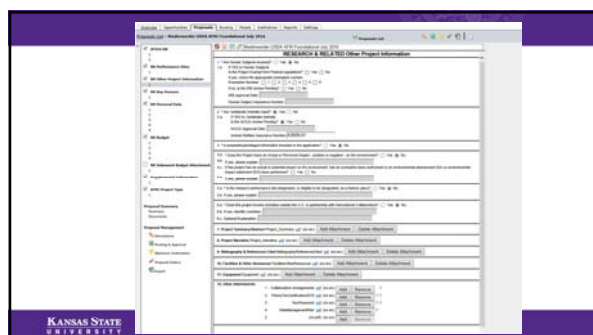
KSU Research Suite

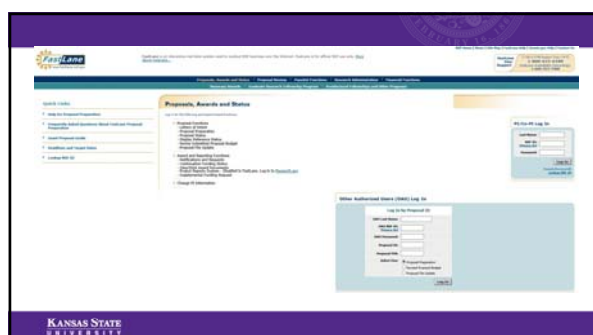
Kansas State University
Research Suite 1.0

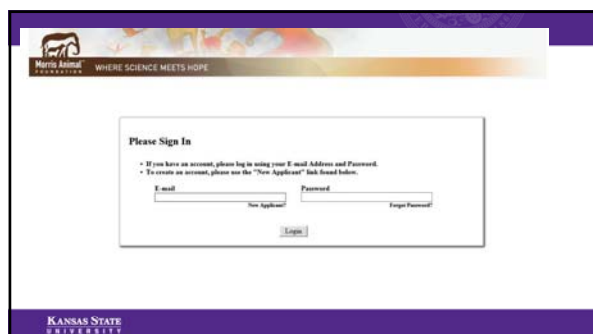
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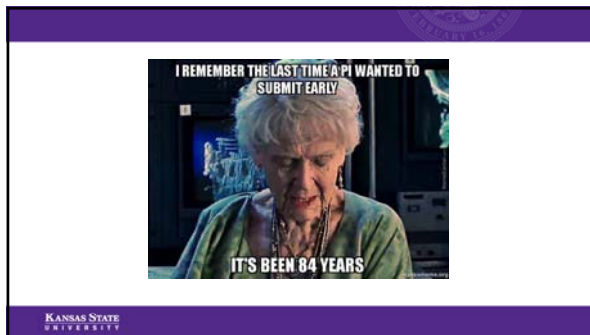
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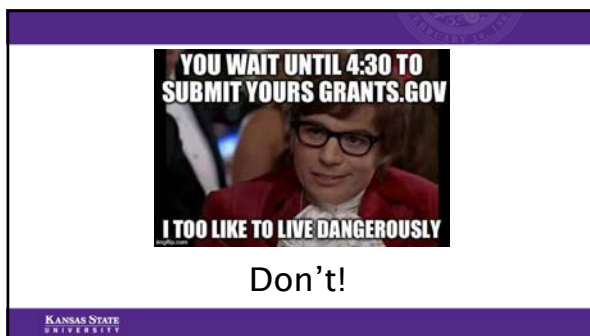
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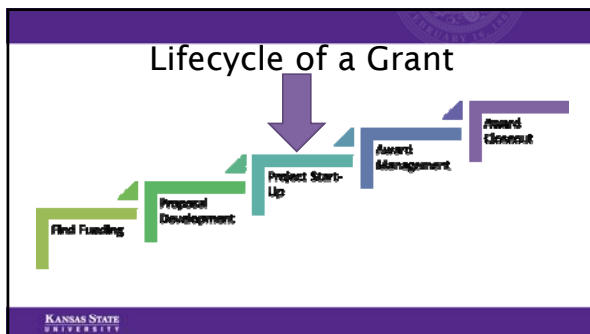












New Award Received, Now What?

- Award notifications may go to PI or main campus
- Research agreements/award terms are reviewed, negotiated, and signed
- Compliance approval (URCO)
- Account number set up
 - Payroll charges
 - Order supplies needed, etc

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Lifecycle of a Grant



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Award Management

- PI responsibilities:
 - Execute the project as outlined in proposal
 - Abide by KSU policy (compliance, etc), sponsor requirements (agreement terms)
 - Follow institutional purchasing policies and spend according to the project budget
 - Allowable, allocable, and reasonable expenses
 - Monitor budget category balances
 - Technical Progress reports

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Award Management

- Grant Specialist Responsibility:
 - Assist with monitoring expenses
 - Financial reporting
 - Assist with submission of progress reports

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Award Management

- Award Modifications
 - Time extension
 - Budget Revision
 - Scope of Work Revision
 - Change in Personnel


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Lifecycle of a Grant

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graph LR
    A[Find Funding] --> B[Proposal Development]
    B --> C[Project Start-Up]
    C --> D[Award Management]
    D --> E[Award Closeout]
    
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Award Closeout

- PI Responsibility:
 - Final Progress Report
- Grant Specialist/SPA Responsibility:
 - Final Financial Report
 - Closeout of grant account






Questions?


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**Data and Publication Accessibility
Data Management Plans**


Rebel Cummings-Sauls
K-State Libraries
Center for the Advancement
of Digital Scholarship



**Center for the Advancement of
Digital Scholarship (CADS)**

Data assistance provided by:
Website: <http://www.lib.k-state.edu/data-services>
Email: cads@k-state.edu
Phone: 785-532-7444
Office: 118 Hale Library

Please contact our center at any time with any of
your data management concerns or questions.



Define Data Management Plan

Formal guide for data during and after
project.

2 pages in length.

Usual Contents?

- Description
- Standards
- Ownership
- Access
- Preservation
- Equipment/Facilities

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Why Plan?

- Expectation to share
- Requirements by grant
- Federal mandates
- Your reputation/career

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Sample Guides

- <http://www.nsf.gov/bfa/dias/policy/dmp.jsp>
- http://grants.nih.gov/grants/policy/data_sharing/data_sharing_guidance.htm
- <http://www.neh.gov/content/data-management-plans-pdf>

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Data Management Plan (DMP) Tool


- https://dmptool.org/user_sessions/institution

Additional DMP Considerations

- Read guidelines every time
- Update if things change
- Follow through
- File organization and naming
- Data storage and back up
- Future usability

Publishing

- Linking publications with data
 - Publisher of article may not publish data
 - Open Access or Publicly Accessible
 - Repository (Institutional, Discipline, Data)
- Check publisher fees now



Thank You

Questions?

Rules for Writing a Winning Grant Proposal

Mary Lou Marino
Office of Research and Sponsored
Programs
mlmarino@ksu.edu

Rule 1. Have a Good Idea



A Good Idea Is:

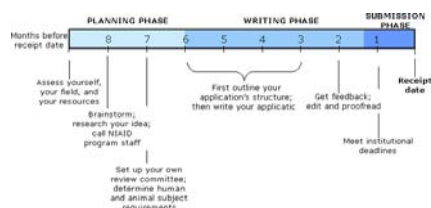
- **Significant**--it solves a problem, answers a perplexing question, expands the knowledge base
- **Innovative**—new approach, new method, puts ideas together in a novel way.
- **Better**-- than other approaches in this research area
- **Understandable**—know your audience, make sure the reviewers will understand. Could your parents understand?
- **Has a Payoff**--makes a contribution, provides benefit, know your outcomes
- **Withstands Vetting**--be sure to run it by colleagues

What Comes First a Good Idea or a Funding Opportunity?

- It doesn't matter as long as:
- The idea is good
- The idea is within the opportunity's scope and the funder's interest

Rule 2. Start Early

- It will take longer than you ever expect!
- Suggested time line:



Rule 3. Organize Before You Write

- What problem do you want to address?
- Why is this problem significant/important? Proof?
- Why is your idea better?
- How is it new, unique, different?
- What are your expected outcomes?
- What are your proposal themes?

Rule 3. Organize Before You Write

- What is your overall research goal?
- What is it for this project/proposal?
- What are your objectives/aims?
- **Approach**
 - Should follow directly from objectives/aims
 - Think about both the forest and the trees
 - Preliminary studies—do you have enough?
 - What are potential problems? How will you mitigate them?

Rule 4. Write Your Problem Statement/ Specific Aims First

- **Concise statement of**
 - Overall goal
 - Specific objectives
 - Significance
 - Payoff
- **Can be used to help refine and vet problem and approach**

Rule 5. Start Your Budget Next

- Takes **3 times** longer than you ever expect!!!
- Gives you time to get equipment and other costs.
- Gives you time to work out \$\$\$ split with co-PIs and other institutions.
- Allows you to be realistic about what you can do.
- Your PreAwards Specialist will love you!



Rule 6. Give the Reviewers What they Want

- Reviewers=Program Manager + Review Panel
- Things to do:
 - Make sure project is within solicitation's scope.
 - Follow Funding Agency's preparation guidelines.
 - https://grants.nih.gov/grants/peer/guidelines_general/Review_Criteria_at_a_glance.pdf
 - Write to the review criteria.
 - Be kind to your reviewers
 - Proposal organization should be consistent throughout.
 - Clearly tell a good, engaging story with minimal "word fog" and jargon.
 - Assume a reader who is uninformed but infinitely bright.

Rule 7. Have a Pre-submission Review Plan

- Ask a **mentor** and/or seasoned colleagues for comments/critiques
 - Check your ego AT THE DOOR – this is business
 - The colleague should be qualified
 - Last minute requests are NEVER appreciated
- Consider a **proofreader**
 - Not associated with the project
 - Detail oriented
 - Format, style, errors and inconsistencies – not content
 - Careless errors are fatal



Rule 8. Make Your Abstract Shine

- The ABSTRACT is the portal to the entire proposal.
- Program managers will only read the **abstract** and the **reference list** before assigning reviewers.
- The Abstract will be showcased on the agency's web site.
- The Abstract is the only part some agency people (i.e., financial) will ever read.
- The Abstract and the Specific Aims/Problem Statement are often where reviewers make up their minds.

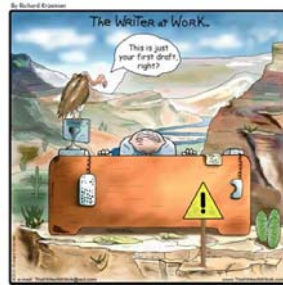
Rule 9. Avoid “Porter’s Pitfalls”

Success = Good Ideas - Pitfalls



The Pitfalls are:

1. Poor fit
2. Poor organization
3. Weak argument
4. Gyrating jargon
5. Obtuse goals and objectives
6. An unclear work plan
7. Deviating from the guidelines
8. Ignoring the review criteria
9. Weak abstract
10. Ignoring your colleague’s comments
11. Errors like typos and misspellings
12. Poor editing



Rule 10. Get on a Review Panel!

- Best way to learn what reviewers want
- Process of reviewing helps you be more aware of what should be in a proposal
- Funding Agencies are always looking for people to review

Rule 11. Be Strategic about the Axillary Sections

- Includes bio, facilities/equipment, data management plan
- They won't win a grant, but they can sure help you loose one
- Tailor your bio to the scope
- Facilities/equipment should complement your narrative
- Reviewers use these sections to determine if you have the background and resources to carry out your project

Rule 12. Contact Your Proposal Development/PreAwards Office Early

The Rules

1. Have a Good Idea
2. Start Early
3. Organize Before You Write
4. Write Your Problem Statement/Specific Aims First
5. Start Your Budget Next
6. Give the Reviewers What they Want
7. Have a Pre-submission Review Plan
8. Make your Abstract Shine
9. Avoid '*Porter's Pitfalls*'
10. Get on a Review Panel
11. Don't Forget the Axillary Sections
12. Contact your Proposal Development/PreAwards Office Early

Contact Information

mlmarino@ksu.edu

785-532-3211

102 Fairchild

Knowledge for Life

Budget and Budget Justification

Terri Fayle
Research Operations Manager
College of Agriculture and K-State
Research and Extension

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Opportunities

- www.northcentralsare.org
 - Sustainable Agriculture Research & Education
 - \$12,000
 - Due April 13, 2017
 - Presentation in late March/early April
- <https://nifa.usda.gov/funding-opportunity/agriculture-and-food-research-initiative-food-agriculture-natural-resources-and>
 - Food, Agriculture, Natural Resources and Human Sciences Education and Literacy Initiative
 - \$95,000
 - RFA not yet available

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Budget and Justification

SUMMARY PROPOSAL BUDGET		YEAR 1		FOR NSF USE ONLY	
ORGANIZATION Kansas State University		PROPOSAL NO.	DURATION (months)	Proposed	Granted
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Terri L. Fayle		AWARD NO.			
A. SENIOR PERSONNEL: PI/PO, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A-7 show number in brackets)		ACT	FUNDING	Funds Requested by proposer	Funds awarded by NSF (if different)
		CAL	ACAD	SUM	
1.	Terri L. Fayle, Distinguished Prof/Pi	0.00	0.00	0.50	7,369
2.	M. L. Marino - Professor/Co-I	0.00	0.00	0.50	4,753
3.	M				
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					

**Kansas State University
Budget Justification**

Key Personnel (\$57,122)
Terri Fayle is the leader of this project and responsible for project planning, organizing research activities, and reporting. Dr. Fayle is requesting 0.5 Months per year for this project, totally \$7,369 annually.

M. L. Marino is a Co-PI of this project and responsible for supervising one graduate student to conduct design and synthesis. We request 0.5 Summer Months for Dr. Marino for this project, totally \$4,753 annually.


Marisha Eck is a Co-PI and post-doctoral fellow on this project and responsible for conducting the proposed research focusing on experimental design, data collection, data analysis, report preparation, and manuscript preparation, present results at conferences, and coordinate among the team. Dr. Eck will be also expected to develop new proposals, and supervise graduate students and undergraduate students. We request 12 calendar months for Dr. Eck for this project.

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Before You Begin


- Review the opportunity/RFA/RFP
 - Limitations to direct or indirect costs
 - Total allowable funding limits
 - Cost share requirements
 - Budgetary restrictions
- The opportunity/RFA/RFP does not contain all the information you need

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Before You Begin


- NSF 15-556 – Cultural Anthropology, Doctoral Dissertation Research Improvement Grant
 - Due August 15, 2017
 - Maximum funding available \$800,000
 - Maximum direct costs \$20,000; use institution's indirect cost rate in addition to 20K
 - Up to 24 months
 - Use for 'valid' research expenses
 - Travel is allowable, but probably not conference travel

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Before You Begin


- NSF Policies and Procedures Guide
 - Budget for each year AND a cumulative budget of all years
 - Budget justification limited to 3 pages
 - Costs budgeted must be consistent with the proposing organization's policies and accounting practices

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What is a Budget?

- Financial proposal
- Reflects the proposed work
- Identifies expenses you expect to incur during a specific time period
- Gives sponsor picture of the project in costs
- Opportunity to help your reviewer understand what you are trying to do
- Can be short (few lines), can be pretty long

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Why Develop a Budget?

- Sponsors require it
- There are limitations on what kinds of expenses you can pay for
- Level of detail reveals how well you've planned
- Can project be performed
- No hype, might be reviewed first
- Acts as blueprint for your spending

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Who uses the Budget?


- Sponsor
- You
 - Feasibility of your proposal
 - Manage funds after awarded
 - Basis for reporting to sponsor on costs
- Your departmental accountant
- PreAward Services
- Sponsored Programs Accounting (SPA)

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Cost Groups

- Direct Costs
 - Can be identified specifically (i.e. solely) with a particular project
- Indirect Costs (facilities & administrative costs or overhead)
 - Costs that are incurred for common purposes or CANNOT be identified specifically with a particular project

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Cost Groups

Simplified Grant Budget

Budget Categories (line item budget)


D I R E C T	Salaries/Fringe Benefits	92,970
	Travel	1,550
	Supplies	12,000
	Tuition	8,600
	H. Total Direct Costs	115,120
+ I. Indirect Costs 52% MTDC		55,390
L. Total Sponsor Costs		170,510
+ M. Cost Share/Match KSU \$\$		0
Total Project Costs		170,510

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Cost Groups

Direct Costs	Indirect Costs (Overhead)
<ul style="list-style-type: none"> • Faculty, post doc, student salaries • Institutional fringe benefits • Glassware, reagents, chemicals • Travel to conference to present findings • Mileage to go to research site • Assay kits 	<ul style="list-style-type: none"> • Clerical personnel • Lights/Electricity • Sponsored Programs Accounting • PreAward Services • Custodial Services • Computer • Office supplies • Library

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Cost Groups



Direct costs: Flour, vitamins, yeast, bag, twist tie

Indirect costs (overhead): personnel, fringe benefits, general counsel, payroll staff, oven, electricity, packaging equipment, delivery truck, building

Profit

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Cost Groups

- Indirect Costs
 - K-State, like a lot of higher education institutions, is a non-profit
 - We can only charge a sponsor for actual costs associated with the work we perform for them
 - Negotiated Indirect Cost Rate Agreement – negotiated with the federal government every four years
 - Typically use MTDC, modified total direct cost application of the percentage

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Cost Groups

- Indirect Costs
- Negotiated Rate for Research, 2012-2016
 - 50%
 - Actual calculated rate 70.05%
- Negotiated Rate for Research, 2017-2020
 - 52%
 - Actual calculated rate 73.27%

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Cost Groups

Simplified Grant Budget

Budget Categories (line item budget)

D	Salaries/Fringe Benefits	92,970
I	Travel	1,550
E	Supplies	12,000
C	Tuition	8,600
T		
	H. Total Direct Costs	115,120
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	L. Total Sponsor Costs	170,510
	+ M. Cost Share/Match KSU \$\$	0
	Total Project Costs	170,510

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Budget Categories


- Key Personnel and Other Personnel
- Fringe Benefits
- Equipment
- Travel
- Materials/Supplies
- Publication
- Subawards
- Other

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Unallowable Costs

- Salary increase only to work on the grant
- Alcohol
- Unrelated expenses that have nothing to do with the project
- Entertainment
- Gifts and advertising
- Budgeted for equipment, purchased it in year five of a five year project
- How do you know?

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Match or Cost Share

Simplified Grant Budget

Budget Categories (line item budget)


D	Salaries/Fringe Benefits	92,970
I	Travel	1,550
E	Supplies	12,000
C	Tuition	8,600
T		
	H. Total Direct Costs	115,120
	+ I. Indirect Costs 50% MTDC	55,390
	L. Total Sponsor Costs	170,510
	+ M. Cost Share/Match KSU \$\$	0
	Total Project Costs	170,510

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Match or Cost Share


- Portion of the project not paid by the sponsor
- Some opportunities require a minimum matching amount
- Must be itemized just like the sponsor portion of the budget
- There are times when the university must come up with cash to cover this cost
- Can also be paid from third party contributions

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Budget with Match


	Sponsor	Match/K-State	Total
Salaries/Fringes	50,000	19,000	69,000
Supplies	7,000		7,000
Purchased Services	2,000		2,000
Equipment		60,000	60,000
Total Direct Costs	59,000	79,000	138,000
Indirect Costs 52%	30,680	9,880	40,560
Total Project Costs	89,680	88,880	178,560

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Budget Justification


- Supporting detail to the budget
- Should contain two bits of information
 - How the cost was determined or calculated
 - Current salary is \$100,000 for 12 month appointee, we request two months summary salary for this project, or \$16,667. Fringe benefits are calculated at 32%. Total request \$22,000.
 - Why the cost is needed
 - Dr. Marino will act as Principal Investigator and be responsible for managing the project as well as performing the

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Budget Justification


- MUST total to the same amounts as the budget
- Should be in the order of the budget
- If match is required, you must provide the same amount of detail for the match funds
- Might have a page limitation

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Budget Justification


- We request \$12,000 annually for laboratory materials and supplies. The materials and supplies include chemicals, solvents and lab supplies.
- **See slide 8**
 - Are there unallowable expenses?
 - Is this project planned well?
 - Can the analyses needed be performed at this amount?
 - Is this going to help you manage your spending when awarded

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Recap

- Budget/Justification critical for big picture
- Costs and how they are calculated are influenced by institutional & sponsor policy, government regulation, sponsor's RFA


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Questions?

- Terri Fayle
 - 785-532-7255
 - tfayle@k-state.edu
- Your grant personnel


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NSF Merit Review Process

Mary Rezac

Director, College of Engineering, Major Grant Initiatives Office
Tim Taylor Professor of Chemical Engineering

Proposal Development

Key Questions for Prospective Investigator

1. What do you intend to do?
2. Why is the work important?
3. What has already been done?
4. How are you going to do the work?

Budgetary Guidelines

- Reasonable for work - Realistic
- Well Justified - Need established
- In-line with program guidelines

Return Without Review: The Proposal:

- ☐ Does not follow guidelines;
- ☐ is inappropriate for funding by the Agency;
- ☐ is submitted with insufficient lead-time before the activity is scheduled to begin;
- ☐ is a full proposal that was submitted by a proposer that has received a "not invited" response to the submission of a preliminary proposal;
- ☐ is a duplicate of, or substantially similar to, a proposal already under consideration by NSF from the same submitter;

Return Without Review: The Proposal:

- ☐ Does not meet NSF proposal preparation requirements, such as page limitations, formatting instructions, and electronic submission, as specified in the Grant Proposal Guide or program solicitation;
- ☐ is not responsive to the GPG or program solicitation;
- ☐ Arrives after the deadline; or
- ☐ was previously reviewed and declined and has not been substantially revised.

Proposal Review Criteria

National Science Board Approved Merit Review Criteria:

- What is the **intellectual merit** of the proposed activity?
- What are the **broader impacts** of the proposed activity?

Program specific criteria as stated in the program solicitation.

2016 New Definitions

- ❑ **Intellectual Merit:** The potential to advance knowledge, and
- ❑ **Broader Impacts:** The potential to benefit society and contribute to the achievement of specific, desired societal outcomes

Intellectual Merit

Potential considerations include:

- How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields?
- How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of prior work.)
- To what extent does the proposed activity suggest and explore creative and original concepts?
- How well conceived and organized is the proposed activity?
- Is there sufficient access to resources?

How Broader Impacts Can Be Accomplished

- ❑ **Through the research itself** (i.e., research that has potential to lead to breakthroughs in certain industries or contribute to solutions to societal problems)
- ❑ **Through the activities that are directly related to specific research projects** (e.g., using the research project as a training ground for students or early-career scientists)
- ❑ **Through activities that are supported by, but are complementary to, the project** (e.g., running an educational workshop for high school students on your research topic)

Broader Impact Examples

- ☐ Full participation of women, persons with disabilities, and underrepresented minorities in STEM
- ☐ Improved STEM education and educator development at any level
- ☐ Increased public scientific literacy and public engagement with science and technology
- ☐ Improved well-being of individuals in society
- ☐ Development of a diverse, globally competitive STEM workforce
- ☐ Increased partnerships between academia, industry, and others
- ☐ Improved national security
- ☐ Increased economic competitiveness of the United States
- ☐ Enhanced infrastructure for research and education

Broader Impacts

Potential considerations include:

- How well does the activity advance discovery and understanding while promoting teaching, training and learning?
- How well does the activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)?
- To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks and partnerships?

Broader Impacts (cont'd)

Potential considerations include:

- Will the results be disseminated broadly to enhance scientific and technological understanding?
- What may be the benefits of the proposed activity to society?

Examples of Broader Impacts

- <http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>

Examples of Broader Impacts

Advance Discovery and Understanding While Promoting Teaching, Training and Learning

- Integrate research activities into the teaching of science, math and engineering at all educational levels (e.g., K-12, undergraduate science majors, non-science majors, and graduate students).
- Include students (e.g., K-12, undergraduate science majors, non-science majors, and/or graduate students) as participants in the proposed activities as appropriate.
- Participate in the recruitment, training, and/or professional development of K-12 science and math teachers.
- Further examples at:
<http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>

Examples of Broader Impacts

Broaden Participation of Underrepresented Groups

- Establish research and education collaborations with students and/or faculty who are members of underrepresented groups.
- Include students from underrepresented groups as participants in the proposed research and education activities.
- Establish research and education collaborations with students and faculty from non-Ph.D.-granting institutions and those serving underrepresented groups.
- Make campus visits and presentations at institutions that serve underrepresented groups.
- Further examples at:
<http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>

Examples of Broader Impacts

Enhance Infrastructure for Research and Education

- Identify and establish collaborations between disciplines and institutions, among the U.S. academic institutions, industry and government and with international partners.
- Stimulate and support the development and dissemination of next-generation instrumentation, multi-user facilities, and other shared research and education platforms.
- Maintain, operate and modernize shared research and education infrastructure, including facilities and science and technology centers and engineering research centers.
- Further examples at:
<http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>

Examples of Broader Impacts

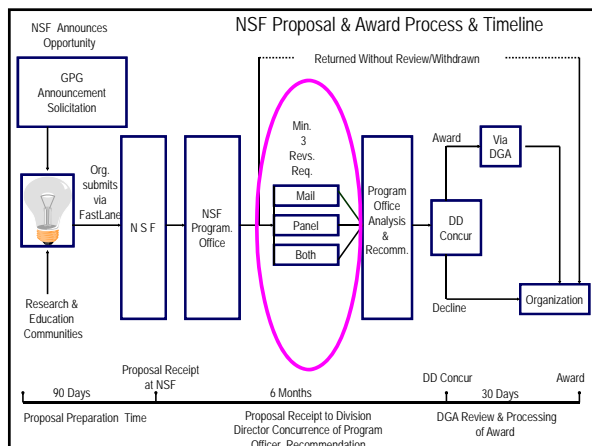
Broad Dissemination to Enhance Scientific and Technological Understanding

- Partner with museums, nature centers, science centers, and similar institutions to develop exhibits in science, math, and engineering.
- Involve the public or industry, where possible, in research and education activities.
- Give science and engineering presentations to the broader community (e.g., at museums and libraries, on radio shows, and in other such venues.).
- Make data available in a timely manner by means of databases, digital libraries, or other venues such as CD-ROMs.
- Further examples at:
<http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>

Examples of Broader Impacts

Benefits to Society

- Demonstrate the linkage between discovery and societal benefit by providing specific examples and explanations regarding the potential application of research and education results.
- Partner with academic scientists, staff at federal agencies and with the private sector on both technological and scientific projects to integrate research into broader programs and activities of national interest.
- Analyze, interpret, and synthesize research and education results in formats understandable and useful for non-scientists.
- Provide information for policy formulation by Federal, State or local agencies.



Reviewer Selection

Types of reviewers recruited:

- Reviewers with specific content expertise
- Reviewers with general science or education expertise

Sources of reviewers:

- Program Officer's knowledge of the research area
- References listed in proposal
- Recent professional society programs
- Computer searches of S&E journal articles related to the proposal
- Reviewer recommendations included in proposal or sent by email - proposers are invited to either:
 - Suggest persons they believe are especially well qualified to review the proposal.
 - Identify persons they would prefer not review the proposal.

Role of the Peer Reviewer

Review all proposal materials and consider:

- The two NSF merit review criteria and any program specific criteria.
- The adequacy of the proposed project plan including the budget, resources, & timeline.
- The priorities of the NSF program & in the field.
- The potential risks and benefits of the project.

Make independent written comments on the quality of the proposal content.

Each proposal gets *at least* three individual peer reviews.

Role of the Peer Review Panel

Discuss the merits of the proposal with other panelists who reviewed the proposal.

Write a summary proposal review based on discussion.

Make a panel recommendation to NSF on whether the proposal should be funded.

*Some panels may be supplemented with ad hoc reviewers if additional expertise is needed.

Types of Reviews

- Outside Reviewers plus Panel Review
- Panel Review
- Internal Review Only (e.g. SGERs)
 - Panels of Program Officers
 - Less Formally Assembled Sets of Program Officers
 - Individual Program Officers

Choosing Mail or “Ad Hoc” Reviewers

Program Officer’s knowledge
References in proposal
Citation Searches; Google Scholar
Reviewer recommendations
Investigator’s suggestions

Reviewer Conflicts Procedures

Primary purpose is to remove or limit the influence of ties to an applicant institution or investigator that could affect reviewer advice

Second purpose is to preserve the trust of the scientific community, Congress, and the general public in the integrity, effectiveness, and evenhandedness of NSF’s peer review process

Funding Decisions

The peer review panel summary provides:

- Review of the proposal and a recommendation on funding
- Feedback (strengths and weaknesses) to the proposers

NSF Program Officers make funding recommendations guided by program goals and portfolio considerations.

NSF Division Directors either concur or reject the program officer's funding recommendations.

Funding Decisions (cont'd)

NSF's grants and agreements officers make the official award - as long as:

- The institution has an adequate grant management capacity.
- The institution/PI do not have overdue annual or final reports.
- There are no other outstanding issues with the institution or PI.

Reasons for Declines

The proposal was not considered competitive by the peer review panel and the program office concurred.

The proposal had flaws or issues identified by the program office.

The program funds were not adequate to fund all competitive proposals.

Peer reviews, panel summaries, and program officer comments are available via FastLane once funding decisions are final for proposers to review.

Use all of this information to improve your proposal competitiveness.

Feedback to PI Documentation from Merit Review

Verbatim copies of individual reviews, excluding reviewer identities (in most cases, at least three reviews)

Panel Summary (if panel reviewed)

Context Statement

PO to PI Comments (written or verbal) as necessary to explain a declination

Feedback to PI Information from Merit Review

Reviewer ratings (E, VG, G, F, P)

Analysis of how well proposal addresses both review criteria: Intellectual Merit and Broader Impacts

Proposal strengths and weaknesses

Reasons for a declination

If questions, contact the cognizant program officer.

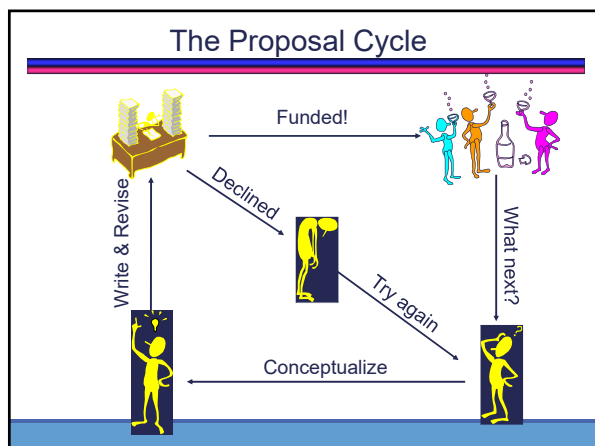
If my proposal is declined, should I revise and resubmit?

Do the reviewers and NSF program officer identify significant strengths of your proposal?

Can you address the weaknesses that reviewers and program officer identified?

Are there other ways you or colleagues think you can strengthen a resubmission?

If questions, contact the cognizant program officer.



Reasons For Funding a Competitive Proposal

- ☐ Likely high impact
- ☐ PI Career Point (tenured?/"established"/"young")
- ☐ Place in Program Portfolio
- ☐ Other Support for PI
- ☐ Impact on Institution/State
- ☐ Special Programmatic Considerations (CAREER/RUI/EPSCoR)
- ☐ Diversity Issues
- ☐ Educational Impact
- ☐ "Launching" versus "Maintaining"

A Good Proposal

A good proposal is a good idea, well expressed, with a clear indication of methods for pursuing the idea, evaluating the findings, and making them known to all who need to know.

A *Competitive* Proposal is...

All of the above
Appropriate for the Program
Responsive to the Program Announcement

What Makes a Proposal Competitive?

- ☐ Likely high impact
- ☐ New and original ideas
- ☐ Succinct, focused project plan
- ☐ Knowledge of subject area or published, relevant work
- ☐ Experience in essential methodology
- ☐ Clarity concerning future direction
- ☐ Sound scientific rationale
- ☐ Realistic amount of work
- ☐ Sufficient detail
- ☐ Critical approach

Grant Writing: Determining Your Objectives & Writing Your Summary, Narrative

Theresa Merrick, Instructor and Writing Center Outreach Coordinator

Writing Center at Kansas State University

Turning Your Research Idea into a Funding Opportunity

- The first step in getting funding for your research is to determine the **significance** of your research outcomes.
- Think about what your research contributes to your...
 - Academic Field of Study
 - Community (local, regional, national)
 - University or Affiliated Organization
 - Your Career Goals
- The next step is to develop (some of) these contributions into measurable objectives.

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Measurable Objectives

In order to be evaluated and understood, objectives must be specific, tangible, measurable, and achievable within a stated timeframe.

First step: formulate a goal (conceptual & abstract)

Second step: turn that goal into a measurable objective

Example:

- Goal: "Our after-school program will help children read better."
- Objective: "Our after-school remedial education program will assist 50 children in improving their reading scores by one grade level as demonstrated by standardized reading tests administered after participating in the program for six months."

Example from <http://foundationcenter.org>

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Reflective Writing Prompt

Take the next 15 minutes to write about your research objectives. Consider the following:

- What value would your research add to the academic field? (Or, what is your critical imperative?)
- How would your research positively impact the community outside of academia?
- What are the most significant impacts of your research?
- How can you measure these impacts?

What you've written (the goals and objectives of your research) will form the basis of your summary and narrative.

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Developing the Proposal: Pre-writing

Nine-Step Proposal Conceptualization Process
(Coley, Scheinberg, *Proposal Writing*, 1990)

1. Understand the problem
2. Brainstorm solutions
3. Identify solutions
4. Describe expected results & benefits
5. Determine tasks to accomplish solutions
6. Estimate resources needed
7. Reassess viability of solutions
8. Reassess expected benefits
9. Identify measurements of outcomes

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Basic Proposal Structure

- **Executive Summary**
- Statement of Need
- **Project Description**
- Budget
- Individual & Institutional Credentials
- Conclusion

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Important Steps to Successful Proposal Writing

- Consider your audience.
 - Collect background information
 - Research grant organization expectations.
- Understand the proposal format/genre.
- Practice useful writing/drafting strategies.

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Collect Background Information

It's important to start by collecting background information about the organization to which you are applying.

- What formatting/content requirements does the organization require?
- What are the organization's aims, goals, or mission? (If you can show that your research correlates with these aims/goals, your proposal will be more likely to be approved.)
- Pay special attention to the organization's "Reviewer Criteria."

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Project Summary/Executive Summary/Abstract

- Snapshot of your research proposal
- Summarizes key information
- Should briefly explain:
 - The problem your research is responding to
 - How your research will seek to "solve" this problem
 - What parts of the research you'll need funding for
 - Other aspects deemed required by the particular organization (capacity of organization, advancement of professional goals, etc.)

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Project Narrative

- "Meat" of the grant
- Provides further explanation of the following:
 - Project's goals and measurable objectives
 - Critical Imperative
 - Contribution to the field/community
 - Research methods/procedures
 - Any research hypotheses
 - Process of evaluation
- Emphasize connections between these sections
- Requires content-specific subheadings
- Specific content requirements vary by discipline & grant organization
- Try to imagine and respond to any questions your readers will have about your project

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Overview of Reviewer Criteria from Major Grant Organizations

- Potential for project to:
 - Advance knowledge in the field
 - Benefit society
- Research plan is logical, organized, and understandable
- Outcomes are measurable and clearly connected to the project's goal
- Creativity
- Researcher appears well-qualified
- Adequate resources are available to complete the research
- Clear plan for utilization of research outcomes
- Adherence to organization-specific goals & interests

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Common Proposal Weaknesses

- Top problems:
- Not clearly identifying and substantiating a significant problem
 - A lack of clarity about how money will be used for project activities
- Other problems:
- Insufficient plan for evaluating the project
 - Time schedule is unreasonable
 - Methods do not suit the scope of the problem
(Coley, Scheinberg, *Proposal Writing*, 1990)

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A Note about Readability

Your readers will likely be composed of both academics in your field and those with little to no knowledge of your field.

Some tips to help more unfamiliar readers:

- Provide definitions for technical/field specific terms
- Develop strong, pointed topic sentences
- Have someone outside of your field read through your work and provide feedback

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Formatting Tips

Aim to make your grant easy to read for "skimmers"

- Bold, descriptive headings
- Draw attention to key words or phrases
- Preview upcoming sections
- Documents that incorporate color tend to stand out
- Incorporate graphics and visuals if possible

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Useful Writing/Drafting Strategies

- Establish a comfortable place to write
 - Good lighting, physically comfortable
 - Free of distractions
- Schedule time to write
 - Keep yourself on track
 - Notes about which sections to focus on can be helpful
- Start writing early!

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Useful Writing/Drafting Strategies

- Free write to discover meaning
 - Commonly successful technique
 - Can help to begin with stream of consciousness style writing
- Begin with the focus/purpose/significance
 - Helpful solution to writer's block
 - Establishes your article's most important points upfront
- Outline

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Useful Writing/Drafting Strategies

- Have others read your work
 - Tailors to specific and general audiences
 - Ensures clarity and audience focus
- Write your executive summary last
- Visit the Writing Center!
 - <http://www.k-state.edu/english/writingcenter/>

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Grant Workshop Questions

In small groups, read through the provided grant application and discuss the following questions:

- What strategies does the writer employ to emphasize the project's goals/objectives?
- How does the writer explain the project's significance for the field and for society?
- How does the writer incorporate the project's goals into the summary and narrative?
- What "moves" does the writer make to help guide a non-expert through her research?
- What design aspects do you notice that improve the readability of the document?
- What are some general strengths you notice about the proposal overall?

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