Have Ideas?

- Research project
- Equipment needs
- Education/course curriculum improvement
- Public or community service
- Education/outreach for teachers & students

➢ Need Money

Write Down then Discuss:

- What do you want funding to do? The project idea
- Why is it worth doing and even important?
- What benefits and results do you expect?
- How much money do you need?

The Promise of This Workshop

- Equip you to find funding for your great idea or project
- Help you navigate Montana Tech’s proposal processes
- Provide some proposal-writing strategies and tips
- Help you develop a network and peer group of grant-seeking colleagues eager to help each other
GRANTS Can Help Advance YOUR Goals & Montana Tech’s

1. Be a National Leader in Educating Undergraduate and Graduate Students
2. Support and Grow Research, Scholarship, and Technology Transfer
3. Respond to Industry, Community and State Needs
4. Improve our Recognition and Reputation in the State, Nation, and World
5. Secure Resources that Support Excellence
6. Create a Culture and Workplace Environment that Fosters Engaged Citizenship Across Local, National and Global Communities

Proposals clearly connected with institution’s strategic priorities are more fundable

From Strategic Plan 2013: A Philosophy of Excellence

Context for Research Funding

• Government R&D and education budgets and trends
• Extent to which science and engineering solve problems of national/international need and interest
• Private foundation interest and resources
• Everyone wants and needs funding, so the competition can be fierce!
• Typical forms of funding:
  – Scholarship or fellowship: support for an individual
  – Grant: has deliverables, requires good-faith efforts
  – Contract: has one or more deliverables, legally enforceable
  – Donation: a gift with no deliverables or “strings attached”

To get funding, usually you have to ask for it and say what you want it for

WRITTEN APPLICATION OR PROPOSAL
Most Grants are **Not** Blank Checks

The Faustian Bargain: if you accept the money
- You must **do what you proposed** and the sponsor therefore wants and expects
- You must satisfy the sponsor’s **accountability** requirements
- Frequent **communication** with the sponsor is a very good idea
  - Be very **careful** about preparing and submitting a proposal, if are not interested in the project

How Does It Typically Work?

- People write a proposal to obtain funding that will allow them to do a specific project they want to do
- Sponsors review proposals, and fund the projects and grantees they judge to be BEST
  - Best means most likely to accomplish something THE SPONSOR wants done,
  - Best means most likely to result in some other benefit desired by SPONSOR
  - What's in it for grantees? **Money**
  - What's in it for sponsors? **Advancing their purpose or image**

The Grant Cycle

- Sponsor issues solicitation or prospectus (sometimes)
- Applicant reads guidelines, prepares/submits proposal
  - Coordinate early with RO, OSP, dean, & department
- Sponsor or peers review/evaluate proposals
- "Best" proposals selected for funding, sometimes after negotiation and budget/scope adjustment
- Funded grantee does the work
  - Cultivating strong relationship with sponsor
  - Satisfying sponsor's requirements
- Grantee completes project, closing budgets and finishing the work, including final report, if needed
- Grantee prepares and submits new/renewal proposal

The Grant Cycle

- Idea & Opportunity
- Write & Submit Proposal
- Award
- Performance
- Evaluate & Report
- Sponsor & Opportunities

Read & follow guidelines; address selection criteria; coordinate with RO, OSP, dean & department
Finding a Promising Funding Source and Sponsor

Identifying Possible Sponsors

- Think of some possible funding sources for YOUR idea?
- Why would they care and want to support your project?
- Write down, then discuss

Who Might Fund Your Idea?

Seek Funder-Project Match
- Shared mission and goals
- Shared constituency
- Common core values and “culture”
- Similar image, motto, vision
- Shared "market"
- Interest in product or result

Write the proposal to attract the sponsor’s $$$

Types of Funders

- Public
  - National government
  - State or provincial government
  - Local government
  - International: UNESCO, European Union, ICTP . . .
- Private (everything else)
  - Foundations
  - Corporations and businesses
  - Professional and trade associations
  - Service clubs
  - Wealthy Individuals
Public Sponsors

- **Advantages**
  - Lots of money; often make large grants/contracts
  - Purpose set by legislation
  - Likely to cover all costs, including overheads
  - Clear application process, criteria, deadlines

- **Disadvantages**
  - Bureaucratic, often require cost sharing
  - Reviewers favor experienced applicants, low risk
  - Proposals longer, often many stipulations
  - Programs rise and fall with “political winds”
  - Many requirements, therefore higher cost

Private Sponsors

- **Advantages**
  - Usually less bureaucratic and more flexible
  - Welcome innovative proposals, emerging issues
  - Proposals are often simple, short
  - Can help leverage large public grants or provide non-cash support

- **Disadvantages**
  - Smaller grant size
  - Priorities can change rapidly
  - Process, policies, and procedures are less defined
  - Review/approval process is less “transparent”
  - Often won’t pay all costs or overheads

The "Fit" is Key

- The “fit” between your idea/project and the sponsor’s interests is key
  - Learn as much as possible about the sponsor
    - What has it funded recently?
  - Know the eligibility requirements
  - Understand the selection process
  - Know the selection criteria
  - Know and address any special requirements

- Make sure the proposal clearly demonstrates how your project satisfies sponsor's criteria and requirements
  - Whoever has the money, writes the rules!

It's Your Job to Understand the Funding Agency

- History, mission, and purpose
- Geographic eligibility (e.g. NSF, DFG, EU differ)
- Current programs
- Size and purpose of grants
- Rules and guidelines
- Background and experience of staff
- Future plans and aspirations
- Its funding sources
- Competitors and collaborators
- Any special contacts or connections with you?
Resources for Finding Funders

- The Foundation Center (MTtech Library has its database on line) [http://www.foundationcenter.org](http://www.foundationcenter.org)
- GuideStar: [http://www.guidestar.org](http://www.guidestar.org)
- Web pages of specific funders (government and private) often show opportunities AND abstracts of all awarded grants
  - NSF Awards database
  - NIH CRISP database

Advice for Contacting Funders

- **Do** contact them, but do your homework FIRST
  - Follow their guidance
  - Make a good first impression by planning well
    - Get to the point
  - Cultivate a relationship
- Follow their rules when you apply
- Don’t bother them right after any deadline
- Send “thank-you” notes or grateful emails
- If funded, keep them informed, invite them to visit
- If not funded, request feedback

Turning an Idea into a Proposal

1. What do you want to do? [The project idea](#)
2. Why is it worth doing and even important?
3. How do you plan to do it? [The approach](#)
4. What benefits and results do you expect?
5. Be sure to follow YOUR sponsors guidelines?
   - #5 gets your proposal considered
   - #3 shows you KNOW how to get the project done successfully
   - #2 and #4 are usually essential for convincing sponsors to provide funding
Questions that a Research Proposal MUST Answer

• What is the research problem? Is there a hypothesis?
• Why is the research needed?
• How significant is the proposed idea?
• How does the project relate to and build on existing knowledge? Who else is working in this area?
• Might the project lead to future breakthroughs?
• Are there potential applications or broader impacts?
• How might the project advance knowledge within and across disciplines?
• Uniqueness? Investigator qualifications? Methodology?
• Theoretical basis? Soundness of plan and approach?

Sources of Information

• Friends, colleagues, proposing organization, other organizations
• Journal articles and publications
• Library
• Databases
• Internet
• Abstracts of recently funded proposals by your prospective sponsor
• Other...

How Can You Accomplish the Project?

Design the Project Approach

• Brainstorm many alternative approaches
• Evaluate each, select (or create) the best
• Optimize and develop the plan
• Useful example criteria for selection and optimization
  – Feasibility and effectiveness
  – Suitability and match to applicant, funder, community, available infrastructure
  – Uniqueness
  – Anticipated impact
  – Utility, practicality, sustainability
  – Cost effectiveness, schedule
  – Alignment with the funder’s priorities and review criteria
Plan the Grant Writing

- When do you want to start the project?
- What grant-submission deadline must you meet?
- Is the plan/project clear? Does it need development?
- What are the selection criteria?
  - Does your project meet them?
- What information do you have in hand?
  - What goes in each proposal part?
- What do you need? Who do you need it from? How will you get it?
- Do partnerships need nurturing? Support letters?
- What review do you want/need before submitting?
- What competing obligations do you have?
- How will you divide the proposal preparation among the team?

Focus on the Funder’s Selection Criteria

- Quality and soundness of project approach: goals, outcomes, activities, plans
- Need and potential impact
- Budget reasonableness and adequacy
- Performer capability: ‘proof’ you can succeed
- Plan for the future (sustainability or follow-up)
- Evaluation methods and plan

**THESE ARE SPECIFIED BY THE SPONSOR AND IN THE PROGRAM ANNOUNCEMENT, IF APPLICABLE**

Read, Re-Read & FOLLOW Guidelines

Make a Plan and Schedule

<table>
<thead>
<tr>
<th>Task or Deliverable</th>
<th># pages</th>
<th>Others Involved</th>
<th>1st Draft</th>
<th>Feed-back</th>
<th>2nd Draft</th>
<th>Feed-back</th>
<th>Final Draft</th>
<th>Submit to RO w/ PCF</th>
<th>Sponsor Deadline</th>
<th>Section Reviewers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposal Requirements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review Criteria Summary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary/Abstract</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vision/Mission/Goals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>About MTECH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approach</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major Section 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major Section 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major Section 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management Plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Budget</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University Match?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Budget Narrative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bios for Key personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Management Plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentoring Plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support letters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example Selection Criteria (1)

- National Institutes of Health, USA
  - Significance: importance of problem; knowledge advancement; effect on the field
  - Approach: developed, integrated, and appropriate
  - Innovation in concepts, approaches, methods, aims
  - Investigator: trained, qualified, appropriately experienced
  - Environment and institution: support, uniqueness, ability to enable success

- Individual Donors
  - Usually informal process and criteria
  - Relationships often very important

Read, Re-Read & FOLLOW Guidelines
Example Selection Criteria (2)

- National Science Foundation, USA
  - What is the intellectual merit?
  - What are the broader impacts?
  - Specific additional criteria specified in the solicitation, such as qualifications of applicant/institution, management plan, diversity, education, partnerships, knowledge transfer, value added

- Private Foundations
  - Generally focused on Foundation’s purpose
  - May be "by invitation" only
  - May use formal review or simply judgment of its staff
  - Check the Foundation’s web site & tax forms (“990's”)

Follow Montana Tech’s Proposal Rules

- Montana Tech has policies and processes for proposal submission
  - Include budget guidelines (overheads, etc)
  - In-house forms for approval process: PCF
  - Rules about how its information and statistics may be used
  - Explicit procedures, roles, and responsibilities for managing an awarded grant

- Be sure to understand and follow your organization’s procedures and rules

- Covered in PI Training (next in January 2014)

Good Idea

- Significant?
  - Does it address an important problem?
  - How will knowledge or well being be advanced?
  - What impact could it have? Who will benefit?

- Innovative?
  - How does it build upon or expand knowledge base?
  - How will it make a difference?
  - How is it unusual, novel, or breaking new ground?

- Achievable?
  - By your team--- with its infrastructure and resources

- Broader impacts?

- Understandable?
Carefully Read Information

• “Program Announcements” or “Requests for Proposals” or “Program Descriptions” are very important
  – They invite proposals in a specified area
  – They describe the sponsor’s priorities, review criteria, and processes
  – They may indicate the amount of funding, size and number of awards planned
  – They provide special instructions for proposers
• Researchers who read, understand, and follow the guidelines are MUCH more likely to be funded than those who don’t.

“Unsolicited Proposals”

• Many sponsors accept and fund unsolicited proposals in addition to proposals submitted in response to a major program announcement
  – National Science Foundation only issues program announcements for major, cross-cutting, or specially focused proposals
  – Most NSF grants are awarded to unsolicited research proposals, which are evaluated through an annual or semiannual review cycle
• There are fewer special requirements for unsolicited proposals
• Unsolicited proposals often have higher success rate

Good Timing

• Will the idea be understood by others?
• Does it build upon current knowledge?
• Does it build on related ideas?
• Do you have preliminary data?
• How will the idea be understood and received by experts in the area?
• Do you have enough time before the deadline to create a thorough and clear proposal?
Good Presentation

- Well organized
- Clearly describing for the reviewers and agency:
  - What you want to do?
  - Why you want to do it (importance and benefits)?
  - How you plan to do it?
  - How you know you are capable of success?
  - What is the expected outcome?
  - What are other likely (broader) desirable benefits?
  - How will it help the sponsor accomplish its mission?
- Easy to read: font, layout, grammar
- Making it easy to evaluate against the criteria

Typical Selection Criteria

- Quality and soundness of project approach: goals, outcomes, activities, plans
- Need and potential impact
- Budget
- Performer capability: ‘proof’ you can succeed
- Plan for the future (sustainability or follow-up)
- Evaluation methods and plan

THESE ARE SPECIFIED BY THE SPONSOR AND IN THE PROGRAM ANNOUNCEMENT, IF APPLICABLE

Read, Re-Read & FOLLOW Guidelines
Good Reviewers

- Reviewers are selected by the sponsor, because they are good reviewers
- How you write your proposal can make the reviewers good for YOU
  - Organize and present proposal to make reviewers HAPPY
  - Easy to understand
  - Easy to find things
  - Easy for them to evaluate how the proposal fares against the selection criteria
  - Easy for them to be your advocate in a review panel
  - Don’t make them work hard: They have lots of proposals to read and represent! Plus a ‘day job’

Reviewers and Grant Managers are People Too

- Personalities and networks
- Knowledge
- Interests
- Tastes
- Learning style
- Fears and biases
- “Marching orders” and job description
  - Know and talk to grant managers and to people, who frequently serve as reviewers
  - Volunteer to be a reviewer—the best way to learn!

Good Grantsmanship

- Understand the sponsor’s mission
- Understand its review process (typically a form of peer review)
- Obtain collaborators or partners that complement your expertise and strength
  - In RESEARCH and SERVICE: there are no competitors, only potential partners & collaborators
- Grant writing, like writing papers for publication or creating works of art, is a learned skill
- Grantsmanship takes time and avoids corner-cutting
  - Plan ahead to avoid last-minute rush and sloppiness
- YOU CAN BE IN CONTROL, WHICH RESULTS IN GOOD LUCK!
Parts of a Proposal (Typical)

- **Cover letter, title page, abstract or project summary:** introduce the project, performer, and amount requested
- **Problem statement:** problem addressed; who cares & why?
- **Project description:** goals, objectives, and approach
- **Evaluation plan:** explains how outcomes will be measured
- **Future plans:** how will work continue after grant is over?
- **Applicant capability:** evidence applicant can succeed
- **Budget:** table & narrative explaining budget details
- **Supporting material:** letters of support, bios, other documentation funder requires

Grant-Writing Tips

- Write for the reader (smart, but non-specialist)
- *Follow the sponsor’s latest guidance and use the latest templates!!* *Meet the deadline!!*
- **BE BOLD! AND CLEAR!!**
  - Use language that creates interest & enthusiasm
- Systematically address any criteria and show close fit with sponsor's interests
- Ensure budget and duration are realistic
- Show team members’ and partners’ qualifications and commitment, matched to the work
- Describe specific milestones, deliverables, benefits

General Tips

- **Tap others** to refine the idea and approach
- **Get a complete draft** as early as possible
  - It is easier to cut to fit, than to rush to find missing parts
- **Have colleagues pre-review drafts before you submit**
- **For a large, complex proposal with many partners**
  - Create the team early and ensure administration ‘buy-in’
  - **Establish and enforce deadlines** that allow at least two internal review cycles of the full proposal before submission
  - Involve people outside the team in the final review (in brainstorming, too)
- **Be concise and clear:** Reviewers are busy people, too
- **Avoid last-minute rushes:** the quality ALWAYS suffers

Helpful Hints for Your Success

- Alert Research Office **early** of intent to pursue grant, agreement, or contract
- **Work early & often** with OSP/Carleen on budget
- **Provide final proposal/agreement documents** to OSP/RO at least 7 days before deadline, with PCF
  - Check clarity, budgets, commitments, compliance
  - Arrangements can be made *in advance* for later delivery, especially if you are working all along with Research Office
  - Proposal drafts delivered to RO/OSP without warning immediately before sponsor’s deadline usually cannot be processed fast enough, plus they are usually incomplete and not competitive
What came first:

The winning proposal?

or

The successful track record?

Guides for Grant Writing

- [http://www.hfsp.org/how/ArtOfGrants.htm](http://www.hfsp.org/how/ArtOfGrants.htm)
  - Website with excellent guide on how to write proposals

- The Foundation Center's web site has many resources for individuals seeking grants
  - [http://www.foundationcenter.org](http://www.foundationcenter.org)

- Talk to Research Office for additional leads
  - We can provide editing assistance, if you request early and work well ahead of submission deadlines.

- Thank you! Questions?