

Raising the Ante

Keys to Success in Winning Larger Awards



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A new era for research?

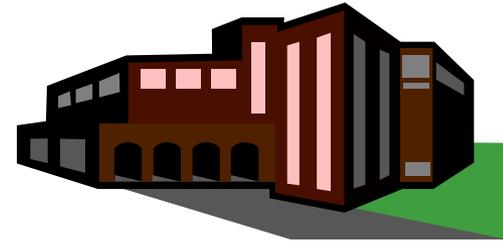


From global sustainability to renewable energy to the origins of life in the cosmos to forecasting and potentially mitigating economic upheavals, the largest scientific challenges—and those that may hold the greatest opportunity for transformative technological solutions into the 21st century—are interdisciplinary in nature. The skills required from a new generation of trained scientists and engineers to address these challenges have been and continue to be broadly discussed and debated.

NSF, “Impact of Transformative Interdisciplinary Research and Graduate Education on Academic Institutions,” 2008



From the same report...



Many pressing problems requiring solution are interdisciplinary, so there is a mismatch between current disciplinary structure and the nature of inquiry.

The university, department or school must establish metrics to reward interdisciplinary activity.



Instead of implementing interdisciplinary approaches from the perspective of a thoroughgoing reform, many universities are simply adopting the interdisciplinary labels.

- Diana Rhoten, "Interdisciplinary Research:
Trend or Transition"

Other Large Scale NSF Grant programs:

- PIRE – Partnerships in International Research & Education
 - EFRI – Emerging Frontiers in Research & Innovation
 - ERC – Engineering Research Centers
 - STC – Science & Technology Centers
 - MRCT – Materials Research Centers & Teams
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US Department of Education

- FIPSE – Fund for the Improvement of Postsecondary Education
-

National Institutes of Health

- T32, R25: Institutional grants for training and/or curriculum development in the health sciences

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So You Want to Form an Interdisciplinary Team? ...Good Luck!

If your research depends on federal funding agencies, you have probably noticed that requests for proposals

that encourage (or in some cases require) an interdisciplinary team are becoming more common. Interdisciplinary research, by definition, involves two or more disciplines that are usually considered distinct. Therefore, I am not talking about disciplines like mineralogy and petrology, where the overlaps and connections are obvious. Try instead mineralogy and biochemistry, or geochemistry and geophysics, where one can be left scratching one's head looking for shades of grey in between two otherwise disjointed fields. Yet interdisciplinary teams are formed all the time—they are assembled typically to solve real world problems that individual disciplines can

not add. For example, look into bioremediation of non-aqueous phase liquids (DNAPL) in soil. How would the physical and chemical properties of a contaminant on a laboratory scale and in the field not really

ability of a long-term, close-knit, fully cooperative and productive effort is probably much lower than one would ever hope, or even imag-

the world, how will the team meet conveniently on a consistent basis? Potential questions, concerns, and problems seem endless.

Even if the pitfalls implied above can be overcome, the battle may still be lost. This is because forming an effective interdisciplinary team is often perceived as a matter of mechanically selecting individuals with the specialties required, while also considering practical and/or proposal-enhancing factors such as the accomplishment, status, and availability of potential group members. Recent academic studies centered on the psychology of collaborative scientific endeavors are actually few and far between, but the literature on team performance in general has shown, perhaps not surprisingly, that attributes such as values, attitudes, beliefs, and personality traits are even

group discussions, but case permeate study group. The is literature of artists.ators, single the. Such research is more important than ever. But in these days especially, there is more to it. Society continually demands more and more from

Scientific interdisciplinary collaboration is a complicated and tricky undertaking. A functional, productive team requires a great deal of patience, understanding, hard work, persistence, and superb communication skills.

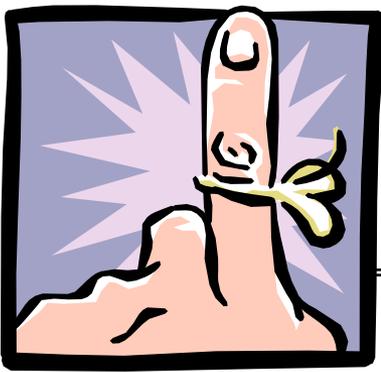
Before you start...



Ten questions to discuss before starting a collaboration

- What do we expect to get out of this?
- Who is going to do what and by when?
- Who will have access to our data?
- Who will give public presentations, and how much data will they reveal?
- How will we assign authorship?
- How will we decide when to publish?
- Who owns the intellectual property?
- Will we share our reagents with other labs?
- What happens if one of us leaves the project?
- What happens if one of us wants to form a separate, but related, collaboration?

Adapted from: NIH Office of Ombudsman⁵



Remember...

“The meek may inherit the earth, but not the grant dollars.”

- J. Paul Getty