

Call for Pre-Proposals
Innovation and Discovery in Engineering And Science (IDEAS) Program

Overview Vanderbilt University announces the opening round of competition for a limited number of awards under the **IDEAS** Program. Both individual faculty members and small groups of faculty are invited to submit pre-proposals describing opportunities for specific, *breakthrough-level* research in Engineering, the Physical Sciences (including Mathematics), the Biological and Biomedical Sciences, the quantitative Social Sciences and the Psychological Sciences. To be successful, a pre-proposal must make a persuasive case that an investment of one-time-only institutional funds will significantly advance a novel idea or eliminate a barrier to the solution of an important problem. The goal of the **IDEAS** Program is to seed or accelerate the progress of bold, pioneering research with the potential to make a lasting impact on basic or applied research in the sciences or engineering. Full proposals will be accepted by invitation only.

The Overall Program The IDEAS Program builds on the experiences and lessons of both the now-concluded Academic Venture Capital Fund (AVCF) Program and the ongoing Discovery Grant Programs that have operated for the last eight years in University Central and the Medical Center. The program seeks to identify opportunities to advance the timetable, or otherwise facilitate the achievement, of breakthrough-level research accomplishments that will advance society's greater good and collective wisdom while at the same time advancing Vanderbilt's standing among the nation's and the world's most respected research universities.

The AVCF program brought about much-needed institutional change. Weaving the work of the selected interschool initiatives into Vanderbilt's academic fabric brought about dozens of changes in the way the institution operates. In just a few short years, the University has become a different place. Faculty members now work together as never before, ready and able to step across school and disciplinary lines routinely and with confidence. Interdisciplinary work has joined disciplinary work as a recognized and accepted feature of intellectual life at Vanderbilt. Along with this change, the Discovery Grant Program demonstrated convincingly the benefits of using competitive programs to seed investments in research that can subsequently be sustained through extramural support. The combined impact of the two programs is evident in many ways, not the least of which is the growth in external funding. Between 2001 and 2008, external awards for research grew from some \$217 million per year to well more than \$500 million per year.

Given where Vanderbilt stands today, direct investment in research is arguably the most effective way to direct limited institutional funds to promote continuing progress. The IDEAS Program focuses on research in the grant-based fields, including Engineering, the Physical Sciences (including Mathematics), the Biological and Biomedical Sciences, the quantitative Social Sciences and the Psychological Sciences, hoping to identify and accelerate ambitious research programs that are especially well-positioned to make exceptional strides. Whereas the AVCF program accepted proposals seeking start-up support for large centers and institutes, the IDEAS program will use a two-step process to invite proposals for two-to-three-year terms of support for specific, highly innovative research. (Research projects that will make use of facilities created under the AVCF program are both permitted and appropriate.) Pre-proposals are invited from those who satisfy the eligibility criteria outlined later in this Call. After the pre-proposals have been evaluated internally, a subset of the submitters will be invited to follow up with full

proposals. Those full proposals will be externally reviewed and then reviewed by internal committees. Directions for preparing full proposals will accompany those invitations.

Those seeking awards from the IDEAS Program are expected to propose original research and to present, with the expectation of maintaining, track records of regularly publishing articles in prominent journals, of effectively mentoring graduate students' and postdoctoral fellows' development as researchers and scholars, and of aggressively pursuing and attracting extramural research funding. Those are the minimum criteria; meeting them is necessary but not sufficient to be invited to submit a full proposal or to receive an award. In order to receive an invitation to compete for an award, the successful pre-proposal must, in addition, make a convincing case that an investment of one-time-only institutional funds has the potential to lead to a major advance, development or breakthrough that will have a lasting impact on basic or applied science or engineering. A rough guide to eligibility would be that a proposal might be judged by reviewers as exciting and thought-provoking, but nevertheless a bit "too risky" for successful funding as a regular grant (an NIH R01, for example, in the case of the biosciences, or the equivalent from NSF, DOE, DoD, or other agencies).

To facilitate the logistical aspects of the overall program – correspondence, document handling and tracking, internal and external reviews, and budgeting, as well as to target certain special opportunities, the IDEAS Program will proceed via three parallel submission/evaluation channels:

- 1) University Central (UC) Channel – each pre-proposal, proposal and award will be led by a faculty member with a primary appointment in University Central;
- 2) Vanderbilt University Medical Center (VUMC) Channel – each pre-proposal, proposal and award will be led by a faculty member with a primary appointment in the Medical Center;
- 3) Joint UC/VUMC Channel – each collaborative pre-proposal, proposal and award must be led by two co-principal investigators who equally share responsibility for the work, one with a primary appointment in University Central and the other with a primary appointment in VUMC. Faculty members with dual primary appointments in UC and VUMC should submit pre-proposals via this channel, not the other two.

The same basic evaluation procedures and emphasis on original, breakthrough-level research will be applied to all proposals, independent of submission channel. IDEAS Program funds may neither be requested nor used to supplant existing funds (start-up packages, individual research funds, etc.) See the following paragraphs for information on submitting via the UC, VUMC and Joint UC/VUMC channels.

Content and Structure of Pre-proposals Pre-proposals should be prepared according to the following guidelines, single-spaced, using a typeface no smaller than 12-point Times New Roman.

(a) A one-page title page that identifies clearly the submission channel (University Central, Medical Center, or Joint UC/VUMC) and provides the title of the intended project. The title page should also include the name, affiliation, campus address, telephone number and e-mail address of the faculty member who will serve as the corresponding author.

(b) Two pages, maximum: A clear description of the goal and significance of the research to be proposed; this *must* be readable and understandable by those outside the field. This narrative must identify how the intended research meets the stated purpose of the program.

(c) Two pages, maximum: A summary of the research activities that will be proposed, how that work will achieve the stated goal, and the role played by each participating faculty investigator.

(d) One page, maximum: A budget summary showing how much support will be requested and for what period of time.

(e) A two-page, maximum, *curriculum vitae* for each faculty investigator. Each c.v. should include at least the following information: Name, degrees (with institutions and years), record of professional employment, number (only) of articles published in peer-reviewed journals (only) for each of the last five years, full citations (title, authors, journal, volume, page numbers, and date) for the five publications considered the most significant, and record of grant support for the last five years (for each grant, provide: grant title; funding level; funding agency; and grant period).

(f) One page, maximum, for each faculty investigator: A list of graduate-student and postdoctoral-fellow supervision, listing only those for whom the faculty member in question served as the *principal* thesis/dissertation advisor or mentor.

Eligibility Criteria

Pre-proposals should describe individual or collaborative, basic or applied research projects in Engineering, the Physical Sciences (including Mathematics), the Biological/Biomedical Sciences, the quantitative Social Sciences, or the Psychological Sciences. The research may be disciplinary or interdisciplinary. Only full-time faculty holding tenured or tenure-track appointments in University Central and/or the Medical Center are eligible to apply for funding.

Submission Categories

There are two submission categories (each submission channel):

Research Infrastructure Awards. It is expected that the majority of any given award made in this category will be used to purchase equipment or to develop new capabilities. The principal objective is to facilitate especially ambitious research, but appropriate consideration will be given for situations in which, say, acquiring a certain instrument would make a substantial impact on several faculty research programs, each of which meets the stated goal of the IDEAS Program. (1) Those submitting through the UC submission channel (page 2, item 1) may request up to \$600,000 for the purchase of equipment essential to the conduct of breakthrough-level research. Start-up funds for faculty hiring may not be requested through the UC channel. It is unlikely that more than two awards will be made in this category through this submission channel in any given yearly cycle. (2) Those submitting through the VUMC channel (page 2, item 2) may request up to \$1,000,000 for equipment and/or to help recruit faculty with particular expertise to establish a core capability essential to the success of breakthrough-level research. It is unlikely that more than one award in this category will be made through this submission channel in any given yearly cycle. (3) Those submitting through the Joint UC/VUMC submission channel (page 2, item 3) may

request up to \$1,000,000 to provide infrastructure for analogous breakthrough-level research. It is unlikely that more than one such award will be made through this submission channel in any given yearly cycle.

Research Awards (All three submission channels.) Up to \$100,000 per year for up to three years (each award) may be requested to advance an important research agenda, including, but not limited to, exploring the consequences of a novel idea or eliminating or overcoming an obstacle to the solution of an important problem, to a major breakthrough, or to the realization of a key objective that will make a major impact. Both the yearly sum and the number of years must be appropriate to the research being proposed. It is likely that mid-course evaluations will be used to assess progress, especially for research requesting three years of support. When necessary to account properly for effort, (a) faculty members with primary appointments in VUMC may each request a supplemental award of up to the equivalent of one month of salary support from IDEAS Program funds; and (b) faculty with primary appointments in University Central may request similar recognition of (i.e., up to one month's compensation for) effort that would be expended during the summer months.

What, When and Where to Submit

Pre-proposals are due no later than 5:00 pm on November 14, 2008. Invitations to submit full proposals will be sent as soon as the internal review committees can complete their work. For all three pre-proposal submission channels, submit one electronic copy (Microsoft Word or pdf) and three hard copies to:

Assistant Provost Elizabeth Rapisarda
401 Kirkland Hall
elizabeth.rapisarda@vanderbilt.edu.