The University of Vermont  
Office of the Provost and Senior Vice President

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From: Jane Knodell, Interim Provost and Senior Vice President
To: Members of the University of Vermont Faculty
Subject: Transdisciplinary Research Initiative: Resource Requirements and Implications

The Transdisciplinary Research Initiative (TRI) has raised a number of questions about its resource requirements, funding sources, and resource implications for academic activity outside of selected transdisciplinary “spires of excellence.” This document seeks to address these questions. I start with an analysis of the underlying structure of our general fund budget; then I use this framework to identify the funding sources for TRI; and finish with an explanation of how resource allocation will work in the future.

An analysis of UVM’s general fund budget

The following table is a simplified presentation of UVM’s general fund budget, organized to highlight the broad sources of funding on a per-student basis.1

<table>
<thead>
<tr>
<th>Source of Funding</th>
<th>Undergraduate</th>
<th>Graduate</th>
<th>Weighted Average of Undergraduate and Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross tuition revenue per headcount student (VT + OOS)</td>
<td>$21,238</td>
<td>$11,445</td>
<td>$20,038</td>
</tr>
<tr>
<td>Institutional aid to students</td>
<td>$5,644</td>
<td>$6,725</td>
<td>$5,776</td>
</tr>
<tr>
<td>Net tuition revenue per student</td>
<td>$15,594</td>
<td>$4,720</td>
<td>$14,261</td>
</tr>
<tr>
<td>Non-tuition funding sources: state appropriation, endowment income, investment income, research indirects</td>
<td></td>
<td></td>
<td>$7,282</td>
</tr>
<tr>
<td>Total sources of funding (net tuition + non-tuition sources)</td>
<td></td>
<td></td>
<td>$21,543</td>
</tr>
<tr>
<td>Total General Fund spending</td>
<td></td>
<td></td>
<td>$22,178</td>
</tr>
<tr>
<td>Operating surplus/loss</td>
<td></td>
<td></td>
<td>$-635</td>
</tr>
</tbody>
</table>
In this snapshot of the FY2009 budget, the University spent $22,178 per student from general fund sources. Total spending per student includes: salaries and benefits of faculty, staff, and administrators, library acquisitions, information technology, and the cost of operating classrooms, faculty offices, staff offices, teaching and research laboratories. The broad scope of UVM’s general fund budget, with its academic budgets distributed to ten colleges and schools spanning liberal arts education, professional education, and graduate education, reflects its character as a classic American research university, “melting [together] all of the components of higher education, serving a multitude of functions simultaneously.”

It is quite evident, from the budget analysis above, that undergraduate tuition is our primary revenue driver. Total spending per student is supported by two funding sources: 65% from net tuition revenue (tuition revenue less financial aid) and 35% from a variety of non-tuition sources, predominantly our state appropriation and research indirects. Net undergraduate tuition makes up 95% of our total net tuition revenue, and net undergraduate tuition per undergraduate student is over three times larger than net tuition per graduate student. Furthermore, 65% of our undergraduate enrollment, and over 80% of our gross undergraduate tuition revenue, come from our out-of-state students. To sustain ourselves, we must maintain our current level of enrollment at the same time that we enhance our ability to compete for the most academically talented students. In addition, we must, at least, maintain the current level of non-tuition support.

**Funding sources for Spires of Excellence**

Our commitment to research, and our complexity as a comprehensive research university, necessarily increase our spending obligations. Spending on research, scholarship, and creative activity spans a wide variety of forms and capital-intensity. Some of our colleagues need time, a computer, travel funds, and a good library to do cutting-edge work in their fields; others need, in addition, stages and costume shops, kilns, studio space, laboratories, specialized instruments and equipment, and graduate students. Creating the time and space required for research, scholarship, and creative activity represents a significant priority, and a concomitantly significant resource commitment, on the part of the University.

To identify where the resources for TRI will come from, it is useful to break out the research component of total general fund spending. We do not track our spending this way, and indeed, our institutional model is based on the premise of deep synergies between teaching and research. But we can roughly gauge the general fund investment in research by adding the component of faculty compensation associated with research (45% of faculty compensation, or $34 m in FY2009) to the facilities and administrative costs associated with research ($39 m).

The resources for TRI come from the $73 m of spending from our general fund budget that is currently directed to research, scholarship, and creative activity. That is, TRI will not be funded by shifting general fund spending from teaching to research by, for example, increasing the student-faculty ratio or raising class sizes across the board. Rather, TRI will be funded through a focusing of research-related spending.

Each year, some piece of the $73 m currently spent on research in the general fund becomes “freed up” through faculty retirements and resignations and the completion of prior start-up and cost-share commitments. This creates the opportunity—the obligation—to make choices about where to invest in terms of the research and scholarship time associated with the hiring of tenure-track faculty, cost shares on research grants, sponsored research staff time, and spending on research equipment and laboratories. With regard to cost shares, sponsored research staff time, and spending on equipment and laboratories (faculty hiring is discussed below), there are two basic criteria that will be used to guide allocation decisions: supporting excellence in research, scholarship, and creative activity, wherever it is; and enhancing areas of strength with special attention to those designated as “spires.”
How resource allocation will work in a world of spires of excellence

It is not possible to present a specific budget for the development of specific spires at this time, since the initial spires have not yet been identified. Once initial spires are identified, I will bring a more specific resource plan to the community for discussion purposes. However, I can describe, in a general way, how resource allocation will work in a world of spires. I start with four points of emphasis.

First, it is important to note that TRI is not a new program that will be added to existing research activity and curricula. It is transformative in nature, meaning that it entails a qualitative change in activity, not a new layer of activity in addition to everything else we are currently doing. Some research activity that is currently being carried out by faculty members working solo, will in the future be carried out by faculty members who are part of a cross-department, cross-college transdisciplinary research group.

Secondly, “spires of excellence” will not be built in a day. The resourcing of each spire will take place over time, with careful attention to the needs of existing undergraduate and graduate degree programs and curricula. Over a 5 year planning horizon, we will focus some of the $73 m currently devoted to research, scholarship, and creative activity in support of transdisciplinary research initiatives (“spires”)—while continuing to support the on-going delivery of our undergraduate and graduate curriculum and existing programs of research, scholarship, and creative activity outside of spires. In this regard, it will be important to make judicious and limited use of course buy-outs to release faculty time for the development of spires.

TRI was designed to map our current and emerging strengths, not to identify new areas that need to be built from the ground up with massive resource injections. This makes the task of balancing the resource requirements of spires with the rest of the academic program an entirely feasible one, especially when considered as a multi-year process. We should also recognize that existing degree programs and curricula are not themselves static and unchanging, but will evolve, in part in response to opportunities created by TRI and General Education.

Thirdly, the TRI resource allocation plan involves the replacement of tenure-track “teacher-scholars” who leave UVM with new tenure-track “teacher-scholars;” it does not involve the replacement of “teacher-scholars” with non-tenure-track research faculty, which would shift more teaching onto “non-spire” faculty. Nor does it involve the creation of two tiers within the community of “teacher-scholars,” with one tier of teaching-intensive, “non-spire” faculty, expected to do most of the teaching so that another tier of research-intensive, “spire” faculty, can have time for their research, writing, and creative activity. That said, it should be recognized that teaching assignments currently vary among tenure-track faculty, based on seniority (with reduced teaching assignments for junior faculty who are building their careers) and research productivity (with increased teaching assignments for tenured faculty who are no longer research-active); these variations would continue to exist in a world of spires.

Finally, I want to emphasize that there has been no investment or faculty hiring associated with the TRI project to date. Last summer, there were 11 tenure-track faculty positions whose recruitments were held back pending the outcome of the TRI proposal development and review process. All of the funding associated with the held-back positions has been made available to the colleges and schools to meet teaching needs, and, as stated above, these positions will be filled with tenure-track faculty. The rise in the student-faculty ratio that has taken place over the last year is unrelated to the TRI project; that was a one-time shift to reach the target ratio set at the beginning of our strategic enrollment growth process. It was essential to reach our target to help resolve the University’s structural deficit during the economic crisis, but also, looking forward, to support a high level of investment in faculty compensation, increased research intensiveness, enhanced academic programming for undergraduates, and investment in facilities.

Strategic faculty hiring lies at the heart of the resource allocation process. Each year, about 30 tenure-track faculty positions, funded through general fund spending, become vacant in the seven undergraduate schools and colleges. The Provost’s Office will work with the deans and faculty leadership to create a slate of approved tenure-track faculty recruitments, each of which will be evaluated in terms of its contri-
bution to the development of a spire, coverage of the undergraduate and graduate curriculum, and contribution to research, scholarship, and creative activity outside of spires. The College of Medicine and UVM Extension (which do not offer undergraduate degrees) will participate in this coordinated strategic hiring exercise, to maximize the potential synergies across the University. It will not be necessary, nor will it be desirable, for each tenure-track recruitment to contribute to the development of a “spire.” Academic areas that lie outside of spires will continue to receive the resources they need to fulfill their institutional missions in education, research, scholarship, creative activity, and service.

With specific regard to the development of “spires,” we will look for, and together create, opportunities to hire outstanding tenure-track faculty whose expertise will support both the needs of disciplinary curricula and the creation of cross- and transdisciplinary research and graduate education groups in cognate fields associated with “spires.” Because spires are designed to create broad transdisciplinary strength, “spire” hires will be widely distributed across the colleges and schools. Tenure-track faculty recruited for a “spire” will continue to reside in departments, and they will continue to teach in the undergraduate program. The main change introduced by TRI is this: where the research component of new tenure-track hires was formerly uncoordinated across schools and colleges, and driven primarily by the research interests of individual faculty, in the future some of the new tenure-track hires will be designed to allow for the intentional enhancement of research strength in certain “signature” theme areas (“spires”).

Strategic faculty hiring will ensure that expenditures on start-up packages are also strategic. In almost every field, it is now necessary to offer “start-up packages” to recruit the best candidates on the market. Packages vary across disciplines, but typically consist of research equipment and instruments, salary for post-docs, and travel for the purpose of data collection. In the future, the Provost, the Deans, and the VP for Research will work together to define and fund start-up packages for approved faculty recruitments. Where possible, we will invest in shared “core” research facilities and technicians for use by multiple faculty, which will reduce the spending per individual faculty member and maximize our use of resources in comparison with a more scattershot approach.

Conclusion: TRI and fiscal sustainability

Our goals for this initiative are to bring greater focus, distinction, and intentionality to the University’s research and scholarly enterprise; to enhance opportunities for faculty to participate in quality research and graduate programs; and to energize the culture of graduate and undergraduate education at UVM by making all of the resources of the University available to advanced students and by enriching the possibilities for undergraduate research and transdisciplinary teaching. These are critically important ends in themselves, but they will also allow us to maintain the University’s competitiveness and success trajectory in an increasingly challenging higher education landscape.

There is a strong case to be made that TRI will enhance our fiscal sustainability as we move forward. It will not add an additional layer of activity that will draw resources from elsewhere in the institution; instead, TRI provides a mechanism by which we can focus the research-related spending that takes place year in and year out, within our general fund budget. The broader benefits of an increased return (national distinction) on this focused investment will be enjoyed by all members of the UVM community. Our even stronger academic reputation will translate into students of increasingly high quality; an increased perception that our value is worth the cost of attendance (an increase in net tuition revenue); stable enrollments; and increased retention. These are all critically important components of fiscal sustainability.

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1 The general fund is a subset of the University’s total budget; it does not include income-expense units (such as Residential Life and the UVM bookstore), or activity directly funded by grants and restricted gifts.
2 Excludes the College of Medicine, the only academic unit that is a “tub on its own bottom” from a general fund point of view. Net tuition revenue from non-degree students counted with non-tuition funding sources. Total headcount students of 11,015 includes only undergraduates (9,664) and graduates (1,351). Actual headcount students (Fall-Spring average) in AY2008-09 was 12,581, which includes non-degree (1,095), Medicine (449), and Post-baccalaureate Certificate students (24).
Some part of our physical plant is supported outside the general fund, including the residential halls, the Davis Center, and the Center for Health and Well Being.


Currently, research indirects are shared between the central administration and the colleges where the indirects are “earned.” The TRI funding model does not involve the adoption of a model in which research indirects “follow” TRI hires.