

Report of the Task Force on CALS Structure
“Ideas for Further Discussion”
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by

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Charge to the Task Force

The College of Agriculture and Life Sciences (CALS) strives to continue to be one of the most highly ranked colleges of its kind in the world and to remain at the cutting edge of its focal areas of scholarship—food and energy systems, and the life, environmental and social sciences. To this end, Dean Boor charged the Task Force to evaluate CALS’ program structure in the context of available budget and changes in organization initiated by the University but in ways that help CALS to maintain its overall vision—to generate knowledge with a public purpose, and be a leader in science and education toward a resilient future. The full text of the charge can be found in Appendix 1.

Executive Summary and Recommendations

To address the charge, the Task Force discussed thematic clusters of disciplines that stand to advance interdisciplinary problem solving and that might serve as focal points for program development or re-organization of existing units. The Task Force considered animal/food/nutritional sciences and international and regional development to be theme areas for possible re-organization of existing units, and environmental science and sustainability, agroecology, life sciences and social sciences to be well-suited themes for faculty hiring clusters and inter-departmental curriculum development.

These thematic clusters could also provide fruitful avenues for admitting students into gateways that lead to undergraduate majors. However, the Task Force also recommends evaluating admission into gateways and the impact of such a policy on the intellectual diversity of the CALS student body. This diversity is highly valued by faculty, students and stakeholders. There was also general agreement among the Task Force members that continuing to allow admissions directly into a number of existing majors was a good idea, especially for those undergraduates who know what they want.

The Task Force reviewed a series of revenue enhancement ideas for the College and prioritized these as follows: a) MPS and MS programs; b) certificate and executive education programs; and c) industrial partnerships.

Recommendations

1. Explore department re-organization with thematic clusters that promote cross-boundary research. Thematic clusters may be useful in organizing faculty hiring, and curriculum and program development, especially in the areas of a) animal/food and nutritional sciences and b) international and regional development.
2. Consider clusters independently of department re-organization as focal points for faculty hiring and inter-departmental curriculum development. Thematic clusters of particular interest in this regard include a) environmental science and sustainability; b) agroecology; c) life sciences; and d) social sciences.
3. Use thematic clusters as gateways for the admission of students who have not decided on a major but who wish to attend CALS.
4. Examine revenue enhancement options placing priority on five-year post-baccalaureate MPS/MS programs and certificate and executive education programs.

Recommendations for Immediate Consideration

1. Hire a coordinator to assist with the administration of MPS program development and maintenance.
2. Determine the efficacy of admitting undergraduate students to thematic gateways without requiring them to declare majors prior to matriculation.
3. Consolidate some small majors into existing or new majors; the report below recommends a number of possible options.
4. Make coordinated cluster hires in key thematic areas drawing on lessons learned with past cluster hiring efforts (e.g., the life sciences or biogeochemistry).

Introduction

There are several key considerations that inform strategic thinking about CALS structure. These considerations inform the range of options that are achievable to meet the CALS mission within a defined period of time and with limited resources. As a large and programmatically diverse college, CALS faces complex issues, most of which are not easily resolved. For example, when making programmatic decisions CALS must take into consideration faculty and staff who may have a variety of competing objectives, the concerns of other colleges and the central administration, and the needs and viewpoints of an engaged and expansive stakeholder base. The interests of these constituents must be managed within expected budgetary constraints. In considering programmatic initiatives, the College must take into account the time and effort required to bring them to successful conclusions. Initiatives that add workload to an already heavily committed staff may not be reasonable. The scope of certain proposed changes may also be constrained by the requirement for committed and uninterrupted leadership. For example, if Dean Boor were to begin an initiative, it would be best for it to be begun promptly to enable completion in the time remaining in her current term. Finally, in the context of the constraints just described, significant changes will require cooperation and compromise among constituencies. The goodwill of these constituents should be treated as a limited resource when defining objectives. These points taken together mean that the College must consider the type, range and scope of changes it seeks to undertake. In the context of limited time and resources,

the College must strategically select programmatic initiatives to retain its national and international stature in agriculture and life sciences (e.g., #3 in the world as ranked by *U.S. News and World Report* and QS World University Rankings).

Three key challenges must inform the strategic thinking of CALS: 1) a projected budgetary deficit; 2) changing undergraduate enrollment in the wake of the creation of the Cornell College of Business; and 3) demand for faculty renewal in light of expected retirements.

Although CALS has faced budget challenges over the last decades from both increasing costs and declining revenues, recent changes have created new difficulties. With the adoption of a responsibility-centered budget model at Cornell, each college receives its own revenues and income, including the tuition of its enrolled students, and each contract college is assigned a portion of state support. Under this model, colleges are also responsible for their own expenses, as well as for a portion of expenses incurred by the university's general operations (referred to as allocated costs at Cornell University) (Hanover Research:

<http://www.hanoverresearch.com/2012/04/02/6-alternative-budget-models-for-colleges-and-universities>; 2016). These changes have increased the responsibility of all colleges, including CALS, to enhance revenues and control both direct and allocated expenses.

However, CALS faces a challenging environment for enhancing revenues. Direct support from state and federal governments has not rebounded to pre-recession levels, competitive grant support appears to be plateauing and there is increased competition for remaining funds. Philanthropic gifts, while critical, are often made with a specific use in mind and may not provide discretionary funds needed for a balanced portfolio of research, teaching and extension. Although CALS strives to be accessible and affordable to all who meet high academic standards, tuition continues to rise as CALS and the University attempt to keep up with rising costs. At the same time, there is an increasing public chorus decrying further increases, making the prospects for continued growth in this revenue stream questionable.

Undergraduate student enrollments in CALS and in its courses are an important consideration in terms of both the academic mission and College finances. With the formation of the Cornell College of Business, tuition from the approximately 700 students enrolled in the Dyson School will no longer flow to CALS. In the short run, the University has agreed to mitigate harm caused to CALS from financial losses associated with the creation of the College of Business, but in the long run, CALS must work to put itself on firm financial footing. Looking to the future, CALS must be in a strong position to vie for increased freshman admissions into other majors. The College must continue to attract a large number of outstanding applicants in order to support a case for increased enrollments.

Faculty members drive the curriculum and create exciting programs that attract top-quality students. But CALS, like other colleges at Cornell and around the nation, is on the threshold of significant turnover in faculty given the large numbers reaching retirement age (66 are age 65 or older). Given the financial constraints facing the College and the fact that faculty salaries are a major budget item, it is crucial that CALS strategically determine priority areas for investment in new faculty who will shape the teaching, research and extension programs of the

future. These strategic investment areas must position CALS to continue to be one of the most highly ranked colleges of its kind in the world and to remain at the cutting edge of the scholarship that defines the College vision and mission.

Thematic Clusters

To begin to examine possible strategic areas for investment, the Task Force discussed thematic clusters of disciplines that might serve as focal points for program development or re-organization of existing units. The discussions were extensive and emphasized programmatic development to promote interdisciplinary problem solving. These clusters, some of which are based on combinations of existing program foci and others that are more novel, include the following:

1. Animal/food/nutritional sciences
2. International and regional development
3. Environmental science and sustainability
4. Agroecology
5. Life sciences
6. Social sciences

The Task Force determined that two thematic clusters might offer useful focal areas for possible re-organization of existing units, faculty hiring, and curriculum and program development: 1) animal/food and nutritional sciences have disciplinary, curricular and programmatic commonalities that could be explored to create a coherent unit; 2) international and regional development has long been an important focus within CALS, for faculty and research programs in Development Sociology, International Programs (IP-CALS), the Dyson School, Natural Resource and other departments. The creation of the Cornell College of Business presents an opportunity for CALS to explore how agricultural and development economics might in the future be deployed within CALS, but outside of the Dyson School, in conjunction with other disciplines.

The Task Force also thought about these thematic clusters independent of departmental re-organization. Clusters might serve as focal points for faculty hiring clusters and inter-departmental curriculum development, some of which is already happening. Thematic clusters of particular interest in this regard include: 1) environmental science and sustainability; 2) agroecology; 3) life sciences; and 4) social sciences. The Task Force viewed the School of Integrative Plant Science (SIPS) as a working model for such coordination that could be critically examined to garner insights. Created through the combination of five departments, SIPS offers a useful model for faculty renewal that stands to clearly define and focus strategic priorities and to reduce redundancies in expertise within the plant sciences. Even without further department mergers, an advisory committee made up of department chairs from thematically proximate areas might work with the deans to identify areas of common demand and to negotiate priorities attached to position requests. In addition, the “new life sciences” and the “biogeochemistry” models of cluster hiring should be examined to determine lessons learned and possibly considered as an approach for further hiring in life and environmental sciences as well

as other clusters. Finally, as the Environmental and Sustainability Science major develops, faculty discussions about the best approaches to unify and strengthen environmental sciences can be encouraged.

In the context of rapidly developing technology that both expands and transforms the scientific enterprise, CALS must consider the best deployment of essential expertise. With this point in mind, the discussion of thematic clusters turned to the question of the best organization of certain types of expertise (e.g., biostatistics, computational approaches to “big data” management and analysis, microbiology, social sciences). Should such expertise reside in self-standing departments, be dispersed widely across CALS, or both? The Task Force recommends consideration of both options depending on what is appropriate for different knowledge domains under given circumstances.

Undergraduate Majors

Thematic clusters also proved useful in thinking about how to address challenges with admissions to our undergraduate programs. Currently, CALS employs the practice of requiring direct admission of freshmen to one of its 22 majors, with target numbers for each major. This approach is unique within Cornell, and has three drawbacks: 1) top students applying to large competitive majors may be turned away, while finding sufficient talented students to populate some of the smaller majors is challenging; 2) the existence of a major necessitates a commitment of resources, including administrative support and faculty to teach its associated upper-level classes, regardless of major size; and 3) the requirement to be admitted to a major potentially deters high-quality prospective students whose disciplinary interests remain undefined from applying to CALS.

The Task Force considered several options for handling undergraduate admissions. The options considered by the Task Force ranged from the status quo (22 majors) to creation of thematic admission gateways or completely open admissions that bring students into the College but not into specific majors. Between these extremes are the options of eliminating or consolidating (some) majors and/or creating one or more gateways for undecided majors. The Task Force agreed that direct admissions into many existing majors should continue. This conclusion was especially true of the five CALS majors most in demand: Biological Sciences, Animal Science, Environmental and Sustainability Science, Biological Engineering and Communication. However, the Task Force also expressed interest in evaluating admission into gateways and the impact of such a policy on the intellectual diversity of the CALS student body. This diversity is highly valued by faculty, students and stakeholders.

Status Quo	Middle Ground	No Admission to Majors
22 majors	Fewer majors through consolidation –and– Gateway for undecided students	Thematic gateways –or– Completely open

Thematic clusters, like those discussed above, might serve as gateways to admit students and to help them learn about CALS majors. A useful starting point to determine the efficacy of

gateways in the admissions process might be the middle ground identified in the chart above. The middle ground has a number of practical advantages: 1) preserves pathways for students for whom major-specific admission is appealing (only about 20 percent of CALS students currently changes majors after admission); 2) eases planning and entry for transfer students coming to CALS (about one-third of the CALS student body are transfer students); 3) clarifies options available for prospective students; and 4) provides a pathway into CALS for students who are not ready to select a major (other colleges have this option, and prospective CALS students may not choose to enroll because this option is not available).

As mentioned above, decreasing the number of majors should free up resources and allow for higher quality admissions overall. The Task Force discussed options both for folding smaller majors into larger majors, and also for creating compelling areas of study for young scholars. For example, the Department of Earth and Atmospheric Sciences is already taking steps to fold the Atmospheric Science major under the broader umbrella of the soon-to-be re-named Earth and Atmospheric Sciences major (previously Science of Earth Systems). The Task Force identified the following possibilities for discussion. In most cases, the smaller majors could become concentrations within the larger major, as is the case in the Biological Sciences major. Several combinations might be considered:

1. Viticulture, Soil and Crop Science, International Agriculture and Rural Development (IARD) and Agricultural Science into one expanded Agricultural Science major
2. IARD, Global Public Health and Development Sociology (DSOC) into a new International Development major
3. DSOC, Biology and Society, and the social elements of IARD into one major
4. Agricultural Science and Plant Science into one major
5. Viticulture into Plant Sciences and Enology into Food Science

The Task Force also noted that some majors might be expanded or created to provide students with knowledge in emerging high-demand fields including:

1. Information Science
2. Biometry and Statistics
3. Agroecology and sustainable food systems, or community and sustainable food systems
4. Agriculture, environment and life science–related communication and media studies

The Task Force reviewed several ideas that could result in greater teaching efficiencies or enhanced revenue from teaching:

1. End very small classes (<10; e.g., the new College of Arts and Sciences policy), or have a policy to ensure that faculty teaching expectations are more equitable.
2. Determine whether CALS faculty are teaching the “right” set of classes to appeal to today’s students, and whether classes are named effectively and are well marketed to attract student interest.

3. Provide classes as well as summer certificate programs to the Cornell Tech campus in NYC to reach urban populations.

Revenue Enhancement

The Task Force reviewed a series of revenue enhancement ideas (new and old) for the College. In particular, discussion focused on challenges and measures that CALS could take to support the implementation of programs that would enhance revenues.

1. Five-year Post-baccalaureate MPS /MS Programs

The Task Force considered various options that might attract students for an additional year of study, including 5th-year programs for Cornell undergraduate students, new MS programs with and without thesis requirements, MPS programs and post-baccalaureate programs that would attract new students to CALS. Depending on the unit, new MPS programs might be developed with a focus on partnerships with industry (such as in Food Science and Plant Breeding and Genetics) or they might be developed with connections to non-profits (e.g., DNR or DSOC) or international universities where complementary expertise exists and strong programs would provide a pipeline of students (e.g., DSOC). Task Force members agreed that successful programs would require established pipelines or processes for placing students into good positions following graduation. Finally, the Task Force identified barriers to implementation of such programs in the units. Logistical and administrative support from CALS for program development and promotion was acknowledged as most important. Also, individual programs need to consider how best to manage faculty workloads associated with the advising and mentoring of increased numbers of students. For example, the supervision of group projects rather than individual projects may make better use of faculty time and may have pedagogical advantages as well.

2. Certificate and Executive Education Programs

Expansion of unit-based programs that meet needs for certification and training beyond traditional degrees was another topic of discussion. The Task Force reviewed examples of successful existing programs (e.g., Dairy/Cheese Programs in Food Science, Brewing/Cider making in Geneva) and support that CALS could provide to induce the initiation of new ones, including those delivered in novel ways (e.g., online programming). Similar to MPS programs, CALS should provide support for development, implementation and marketing.

In contemplating who would initiate such program development, the Task Force reflected on how CALS professors and associates distinguish between what they are doing as part of the extension mission and what should be paid for by commercial or private entities. In expanding such programming, it will be important for CALS to establish clear policies about fee structures.

Synergies between MPS and certificate programs might be possible. For example, on-campus certificate programs can be timed to meet the needs of on-campus MPS students (e.g., during January or other academic breaks).

Certification program ideas identified include community development, bioinformatics for science professionals, social network analysis, data science skills and Pro-Dairy outreach.

3. Increase Industrial Partnerships

In addition to the traditional activities involving outreach to alumni and foundations, the Task Force discussed strategies for individual units to partner with industries that link with their programs. Progress to date in this arena was noted for the Food Science Department, which has a relatively new Industry Partnership Program (IPP). There is a fee to join the association. The connections can lead to new research dollars for the unit and post-graduation opportunities for student employment.

4. Summer School Expansion

The Task Force reviewed opportunities for expansion of summer school offerings. Currently some lecturers and faculty with an interest in summer salary income teach summer school classes. In some units post-docs and senior graduate students have been involved. The current funding model is not as favorable as it once was. One option for CALS would be to develop a tri-semester program (enabling tuition collection for summer offerings outside of the School of Continuing Education [SCE]), but the net revenue would need to be examined. For example, the College of Engineering (CoE) offers its own set of summer courses independent of SCE to enable their co-op student programs. Engineering students can take these courses through CoE regardless of whether they are in the co-op program.

CALS should think about marketing summer offerings to high school students. Attractive bundling of sets of classes that appeal to that demographic could be effective. Examples noted include ESS courses or courses focused on social media.

5. Enhanced Monitoring and Application for Mega-grants

Faculty need help navigating the Cornell system to submit applications for large-scale grants. The Task Force identified experiences of programs at Cornell and elsewhere that had sought to stimulate development of large grants. CALS should evaluate those efforts and consider implementing appropriate measures.

Conclusions

This Task Force was meant to stimulate initial dialogue across the College, on ways that we can creatively and effectively maintain our intellectual rigor in scientific and educational endeavors and knowledge for a public good while seeking to have a long-term, viable and

vibrant college. We hope that these initial ideas can be the springboard for a constructive, open and respectful discussion within the College about ways to achieve these goals.

Appendices

Appendix 1: Task Force Charge

Appendix 2: CALS Strategic Plan

Appendix 3: CALS Strategic Hiring Priorities

Appendix 4: Peer Colleges for the College of Agriculture and Life Sciences

Appendix 5: Benchmarking Information about Peer Colleges

Appendix 6: Peer Institutions Departments and Majors