REPORT OF THE RESEARCH INFRASTRUCTURE TASK FORCE

Kansas State University

June 15, 2010

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EXECUTIVE SUMMARY

The Process. The Research Infrastructure Task Force (RITF) has been meeting since January 27, 2010 after President Schulz's initial charge made public on January 19, 2010. From his charge we have followed the theme that the RITF "should take a broad, overarching approach" and thus we have considered a very broad range of subjects which we believe form the basis of research, scholarship and creative activities for any dynamic university. Indeed, we have taken the liberty to expand the concept of infrastructure to mean research, scholarship and creative activities (RSCA). We did not attempt to define actual research areas that the university should promote. We felt this approach would be counterproductive to the more important task of gaining activity and respect for RSCA across *all* disciplines.

To pursue our task we split the group into seven working groups of three to four people. These working groups were:

1. Administration and Staffing
2. Equipment and Laboratories
3. Policies and Procedures
4. Equity Across Disciplines
5. Graduate Students
6. Overhead Distribution
7. External Interactions

These groups worked to obtain and analyze data in their assigned areas. This process led us to make two surveys: one concerning the state of the RSCA "infrastructure" and the other concerning SRO distribution. The entire group met often to discuss and integrate the various findings. The final report here was put together by an eighth group of four, again with extensive input from the entire group.

Overview of Findings. Kansas State University is a student-centered, land-grant university where some fraction of the faculty pursues RSCA to various degrees in their fields of specialty. The public perception of K-State retains the student-centered, land-grant descriptors and includes athletics. RSCA are largely ignored or not understood by the general public.

These facts stand in contrast to numerous examples and studies that show that a university vibrant in the RSCA enterprise can underpin equally vibrant local and state economies and form the basis for a rich culture and high quality of life. Without RSCA a university is nothing more than a grand high school. With RSCA, a university is a place where a community of scholars can create new knowledge in an unfettered environment and disseminate that knowledge through teaching, scholarly activities, extension and outreach.

Unfortunately the RITF finds that K-State falls short in its ability to claim uniform excellence in RSCA. K-State ranks only 86th among Public Research Institutions according to the University of Arizona's Center for Measuring University Performance. In FY09, K-State generated over $133 million in new research contracts and grants. Extramural research expenditures increased by only 16% from FY02 – FY07. The research expenditure level and the growth rate are among the lowest quartile in our peer groups. A mere 10 units account for ~56% of the university's external support and external support for departments not on the top-25 list is

between meager and non-existent. Moreover, for the last decade our internal expenses for all but one budget category have increased at a rate that at least triples the growth rate of our Intramural Research Program. Office, lab, and communal research spaces and facilities are often second class. Further, unlike many other universities K-State has not seen success in procuring large, multi-investigator, center-type grants

The RITF has found that many faculty who have significant research obligations feel that they had little support or recognition for their efforts since the past President's agenda was dominated by undergraduate education and athletics. There has been an attitude that at K-State we do RSCA *too*, not that we do RSCA, and a general malaise exists that RSCA is not as important as undergraduate education and athletics. Equally distressing is that many faculty do not consider RSCA as an integral and essential part of their duties. Indeed, some units have not even submitted applications for outside funding over much of the last decade. Graduate students and the Graduate School are viewed as add-ons to the main activities of the university and not seen as integral to the success of the University. Finally, many of our best faculty scholars and researchers leave K-State for other universities where the climate for RSCA is richer and hence their opportunities are better.

What to do about this dire situation? There is much to do as detailed in this report. Indeed, the needs are daunting, but we must begin. A brief summary overview is presented below:

The University must define itself and this definition must use RSCA as its foundation. With this new definition, a new culture that advocates, expects and recognizes RSCA must be instilled from the top down, via the central administration, across all disciplines and units. This new culture must extend beyond the campus through the Foundation and the Alumni Association. The University needs to clearly articulate this new definition and culture to the Board of Regents, the State legislature, and the general population of the State.

The K-State research portfolio is limited both in the disciplines that pursue RSCA and the agencies from which we procure our support. We must make RSCA systemic, and we must broaden our horizons for funding sources. Increasing K-State's intramural research funds and diversifying the sources from which these funds are drawn are fundamental to a sustainable improvement in the university's extramural research portfolio.

Graduate students are the foot soldiers of the RSCA enterprise. High quality graduate students properly led by inspiring faculty are a recipe for certain success. We must elevate the stature of the Graduate School and graduate education and bring top-notch graduate students to our campus.

The central administration must not only change the climate for RSCA but the environment as well. The RSCA enterprise cannot be hindered by lack of fundamental facilities which so often is our case. We need centrally-supported, shared research facilities and new or renovated spaces thematically driven as opposed to departmentally structured. The Office of Research and Sponsored Programs must better meet faculty research needs. Central support is needed for organizing large research programs, archiving and coordinating campus resources (labs, equipment and people), and developing prosperous relationships with a great variety of funding sources. The central administration must formulate strategies that promote RSCA with funding commensurate with its great importance.

Finally, the Task Force members are committed to K-State and the improvement of the RSCA enterprise. We remain at the President's service to discuss our findings and recommendations and to aid their promotion.

Task Force Members.

Betsy Cauble, Associate Professor of Social Work and Department Head, Sociology, Anthropology and Social Work; Faculty Senate President-Elect.
Kara Dillard, Doctoral Candidate in Sociology, Graduate Student Council President.
Shannon Fisher, Associate Controller, Controllers Office.
James Guikema, Associate Vice President for Research and Professor, Division of Biology.
Mike Haddock, Assistant Dean, Research, Education and Engagement Division, K-State Libraries.
Loretta Johnson, Associate Professor, Division of Biology, College of Arts and Sciences.
John Leslie, Professor and Head, Department of Plant Pathology, College of Agriculture.
Daniel Marcus, University Distinguished Professor of Anatomy and Physiology, College of Veterinary Medicine.
Denis Medeiros, Professor and Head, Department of Human Nutrition/Associate Dean, Scholarship and Research, College of Human Ecology.
Mary Rezac, Professor and Co-Director Center for Sustainable Energy, Department of Chemical Engineering, College of Engineering.
Carol Shanklin, Dean of the Graduate School and Professor, Hospitality Management and Dietetics.
Kerry Taylor, Assistant Vice President for Research (Animal Care); Director, Comparative Medicine Group.
Karin Westman, Associate Professor and Department Head, Department of English, College of Arts and Sciences.

Administrative Assistants. Caron Berges, Senior Administrative Specialist to the Vice President for Research; Lisa Schubert, formerly Assistant to the Director of Governmental Relations.

Task Force Chair. Chris Sorensen, Cortelyou-Rust University Distinguished Professor, Department of Physics, College of Arts and Sciences.

REPORT OF THE RESEARCH INFRASTRUCTURE TASK FORCE
JUNE 15, 2010

1. STRATEGIC VISION FOR RESEARCH, SCHOLARSHIP AND CREATIVE ACTIVITIES

A strong and coherent vision is needed to bring eminence to research, scholarship and creative activities at Kansas State University. In the past K-State has employed a strategic vision for these activities that simply suggests that more is better, but provides little guidance as to what is best. This approach is consistent with the highly decentralized culture of the University which has left research, scholarship and creative activities to single investigators or groups of investigators with essentially no context for synergy. This structure impedes the growth and success of large research teams and does little to promote a culture that supports and rewards these activities. If K-State is to grow the research, scholarship and creative activities enterprise to achieve national and international prominence, a strong strategic vision promoted and supported by central administration, the deans, and department heads will be required.

University resources are limited but demand for central support of the research endeavor is great. Thus, university personnel cannot fully support all research needs. By providing specific and actionable goals, all university personnel can set personal priorities that are consistent with overall university objectives.

1.1 Research, Scholarship, and Creative Activities at K-State

1.1.1 Findings

- **Current University research status.** Kansas State University is currently ranked 86th among Public Research Institutions by the University of Arizona's Center for Measuring University Performance.[1] In FY09, Kansas State University generated over $133 million in new research contracts and grants. Extramural research expenditures increased by 16% from FY02 – FY07. The FY07 research expenditure level and 5-year growth rate are within the lowest quartile of a group consisting of the Big 12 universities and land-grant universities.[2] Additional details can be found in Appendix 1.
- **Early-career premier awards.** In FY10, five early career K-State faculty members were honored with NSF[3] CAREER Awards, an admirable achievement. However, there were no NIH[4] early-career K-awards.
- **K-State researchers have had limited success in acquiring competitive "mega" projects.** While research awards have increased continuously for the past two decades, the majority of awards currently active at K-State are for single PI or small group projects.[5] K-State has never had an NSF Engineering Research Center (ERC) or Science and Technology Center (STC) funded. We have only a handful of graduate student

[1] E. Capaldi, J. Lombardi, C. Abbey, D. Craig, 2008 Annual Report, The Top American Research Universities, University of Arizona Center for Measuring University Performance, 2008.
[2] HBCU land grant universities have been excluded from this comparison. All data from NSF sources: www.nsf.gov/statistics/rdexpenditures/
[3] National Science Foundation.
[4] National Institutes of Health.
[5] Less than five researchers involved.

training grants.[6] Nevertheless, most funding agencies are trending towards awarding larger projects.

- **Extramural research activity at K-State is unbalanced across units.** Analysis of FY10 research contracts to date indicate that over 56% of the research dollars awarded have Principle Investigators within 10 reporting units; over 85% of the awarded dollars have gone to 25 units.[7] Additional details can be found in Appendix 2.

1.1.2 Recommendations

We fully support President Schulz's goal to be named a top 50 Public Research Institution by 2025. Yet, because this rating is determined by K-State's position on multiple factors relative to our peers, the goal does not provide for clear metrics around which individuals and units can build priorities for their resources (including faculty and staff time, graduate student support, and hard research dollars). Therefore, additional, more specific goals should be articulated.

- **Articulate actionable goals around which decisions regarding resource allocation can be prioritized.** The Research Infrastructure Task Force recommends the following preliminary goals which will serve as milestones on the road to the overarching top 50 status. Ultimately, the composition of the list should be refined by the President, working in collaboration with the Vice President for Research, the Provost, the Deans, faculty and others.
  - Increase by 20% the number of faculty with active research grants by FY12.
  - Double the number of NIH R01 grants in the next five years.
  - 10 Faculty Members will receive NSF CAREER awards during FY11 and FY12 and three new NIH K-Awards in the next five years.
  - 10 new graduate training grants will be received during FY11-FY13.
  - The first NSF-ERC, NSF-STC, USDA CAP,[8] or equivalent by FY14.
  - Increase by 25% the number of federally-funded, multidisciplinary grants by FY14.
  - Have all academic departments achieve some extramural funding by FY12.
- **Focus new and existing resources on attaining these goals.** An example of actions which could support the success in NSF CAREER awards is provided. If other goals were established, and they should be, corresponding recommendations to support them would be established.
  - Provide one trained PreAward Services individual and one faculty mentor to support all faculty members interested in, for example, submitting CAREER awards.
  - Hold CAREER proposal writing workshops, provide electronic repository for template supporting documents, i.e., letter of support from department heads, collaborations with on-campus outreach programs, etc.
  - Have Pre-Awards generate preliminary budgets for each CAREER eligible faculty member early in the proposal year.
  - Pre-review of CAREER proposals by a small committee of CAREER awardees.

[6] Including the following programs: NSF IGERT (Integrated Graduate Education Research Teams), NSF GK-12, DoEd GAANN, Department of Education Graduate Assistance in Areas of National Needs. USDA (US Department of Agriculture) National Needs Fellowships (we've had more USDA projects than all others combined, yet, the total remains low).

[7] There are 137 reporting units which include departments, colleges, research centers, and extension centers.

[8] NSF ERC and STC are Engineering Research Center and Science and Technology Center, respectively; USDA CAP projects were first introduced in FY08 and have a character similar to NSF ERC's.

2. ADVOCACY OF A RESEARCH CULTURE AT K-STATE

2.1 Intellectual Capital

2.1.1 Findings

The lack of focus on the research enterprise hinders the recruitment and retention of faculty, postdocs, and graduate students. These groups lack the professional support they require to thrive as researchers, scholars, and artists in their respective disciplines and as representatives of K-State. Graduate students are particularly susceptible: the quality of and concern for graduate student mentoring is not uniform across campus, with some disciplines showing considerable deficiencies. Such a lack of concern and quality is a serious detriment to high quality scholarship, to graduate student retention, and to timely degree completion.

2.1.2 Recommendations

- **Create a new culture to promote research, scholarship, and creative activities at Kansas State University.** K-State would benefit from a top-down infusion of a new attitude, a new culture to raise the status of research, scholarship and creative activities. Central Administration should help the university community to develop an attitude that research, scholarship and creative activity and teaching are the complementary yin and yang of a university, and that this complementarity is at the core of all great universities.
- **Promote the concept of a community of scholars in a university without walls.** This community provides mentoring by those who know or have experience to those who don't. This could be senior faculty mentoring junior, those successful with a given funding agency mentoring others new to the agency, or providing aid for dual career families. This community promotes the flux of ideas across disciplines by actively engaging its faculty to interact. This community acknowledges work well done with internal honors and recommends those with accomplishments for external honors and appointments.
- **Provide mentoring to both faculty (see 4.2.2 and 5.4.2) and graduate students (see 5.4).**

2.2 Message and Image

2.2.1 Findings

K-State has fostered an image that projects undergraduate teaching and athletics as its priorities. For example:

- Over 80% of the lectures featured in the Provost's Lecture Series over the past two years have focused on teaching
- Over 70% of the university's faculty awards recognize teaching or service
- Only 37% of the news releases produced in March 2010 focused on research, scholarship, and creative activity.
- The K-State Foundation and Alumni Association emphasize the undergraduate experience and athletics.

As a result, there is no central, consistent message on how the research, scholarship and creative activities enterprise of faculty, post-docs, graduate students, and undergraduate students drives the university, and underpins the foundation of the economies of the community and the state at large. Further, there have been no visible university advocates for this enterprise within and beyond K-State comparable to advocates for undergraduate education, such as the Vice President of Student Life, Pat Bosco.

2.2.2 Recommendations

- **Clearly define and vigorously promote K-State's mission as a research university.**
- **Create a comprehensive communication and marketing plan** to promote the research, scholarship, and creative activity of faculty, postdocs, graduate students, and undergraduate students. This plan would bring to the forefront research, scholarship, and creative activity through news releases, web features (such as a research calendar and research portal), athletic events, and road signs or billboards (analogous to ones that advocate for Kansas farmers: "The K-State research enterprise provides jobs for ___ people"). The existing Cooperative Extension Service could assist with disseminating this message.
- **Expand the number of university accolades and awards that recognize excellence in research, scholarship, and creative activity**, establishing both prestigious research groups (e.g., the Purdue Million Dollar Club) as well as awards that mark achievements by junior faculty, post-docs, graduate students, and undergraduate students.
- **Ask administrators to lead by example**. Encourage faculty with administrative appointments (e.g., department heads) to continue their research, scholarship, and creative activity.
- **Enlist the assistance of the K-State Foundation and the Alumni Association**, so that they serve as advocates for research, scholarship, and creative activity as well as the undergraduate experience.
- **Establish a new position within the office of the Vice President for Research: an Assistant Vice President for Research**. The person holding this position would advocate for intra-campus collaborations for research, scholarship, and creative activity and for external collaborations with industry, government, private foundations, and K-State Foundation.
- **Create a renaissance for the Cooperative Extension Service** so that broader university level research, scholarship and creative activities are included prominently alongside the more traditional efforts in agriculture, human ecology and 4-H.

2.3 Research, Scholarship, and Creative Activity

2.3.1 Findings

When research is recognized, there is little acknowledgement of the diverse types of research, scholarship, and creative activity pursued by faculty, post-docs, graduate students, and undergraduate students. Faculty members from disciplines other than the natural, physical, and engineering sciences express concern about the perception of "research" at K-State. The word "research" is often a short-hand way of signifying "research, scholarship, and creative activity." However, the abbreviation of the phrase to the single word "research" feeds a sense of alienation in the other disciplines and may inadvertently compromise the university's support of all three types of activity.

2.3.2 Recommendations

- **Include the full phrase "Research, Scholarship, and Creative Activity" (RSCA)** in more documents and in university publications. Consider, too, changing the name of the Vice President of Research to the Vice President of Research, Scholarship, and Creative Activity.

3. THE K-STATE RESEARCH PORTFOLIO

3.1.1 Findings

- **The University's extramural research portfolio is unbalanced**. FY09 Research award amounts are detailed in Table 1. Nearly one third of the FY09 research awards were received from USDA. In contrast, only 4% came from the Department of Energy, and 5% from industry. Perhaps, one manifestation of the decentralized nature of research at K-State is that research funding opportunities for which K-State faculty have limited experience, and therefore represent a higher barrier to entry, have been largely ignored. This has manifested itself into a funded research portfolio which is heavy in USDA dollars and very light on NIH[9] Industry, and DoD/DARPA[10] support.

Table 1: K-State FY09 Research Awards[11]

Source	Amount ($)	% of total
NASA	232,056	0
State of Kansas	3,689,878	3
Education	4,980,485	4
Energy	5,848,938	4
Industry	6,023,816	5
Other Fed	6,636,082	5
EPA	6,636,805	5
Foundations	8,688,887	7
NSF	10,906,205	8
HHS(includes NIH)	15,573,384	12
Defense	22,043,139	16
USDA	42,232,474	32
Total	133,650,575	

The University's outside funds from most other agencies and from industry and foundations are all lower than expected for a university of our size and efforts. Some of this shortfall may be attributed to faculty expertise, but some also is due to the number of faculty members who are submitting proposals. K-State researchers often "think small" and look only for enough money to get by. The lack of staff in the Vice-President for Research's Office with contacts and experience in working with particular agencies means that informal information on coming Requests for Proposals(RFPs) or unwritten knowledge of what the grantor is looking for in a proposal often is lacking. If university research income is to continue to grow, we must explore and understand new sources of support.

- **Funding structures are evolving to larger grants.** Many agencies are funding fewer but larger, multi-investigator grants, i.e., "mega" grants. Thus collaboration, often across

[9] NIH funding is relatively small for a university of our size with only 14 of the prestigious "established researcher" R01 grants. Moreover, nine of the PIs of these grants are senior faculty who could retire in the next 5 years.
[10] Department of Defense/Defense Advanced Research Projects Agency.
[11] NASA is the National Aeronautics and Space Administration, EPA is the Environmental Protection Agency, HHS is Health and Human Services.

disciplines, is becoming the order of the day for successful grantsmanship. This format requires that investigators know the human resources available on campus and elsewhere to form collaborations, help with workloads beyond the scholarly, and to organize and administer collaborations, just to submit a proposal.

- **Changes in USDA funding structure.** The USDA is undergoing radical changes and K-State researchers may not be poised to respond. The changes in funding being implemented this year by USDA are major and will probably reduce overall funding from this source in the coming years. Some panels, e.g., Plant-Microbe Interactions, through which many K-State scientists had been consistently funded, no longer exist. USDA has historically been an agency which has funded modestly sized single PI grants for two to three years. The subject areas for USDA funding opportunities largely tracked College of Agriculture academic programs. Under this model, K-State has been relatively successful. Yet, the model has been largely abandoned. This year, USDA has offered funding grouped around five thematic areas and has significantly expanded the scope of each project. "Small" projects in FY10 will be at least twice as large as the typical projects of the past. Yet, the most radical change has been the addition of "mega" projects termed USDA-CAP projects. Within the current solicitation, the CAP offering in the bioenergy technical area has a maximum budget of $9 million per year over 5 years ($45 million total). These mega projects are nearly 100 times bigger than the projects of the past and require an entirely new way of organizing research ideas and teams. The teams responding to these offerings must be multi-disciplinary, multi-institutional, multi-state, and must leverage partnerships with historically underrepresented groups and with industry. Success in this arena will require even K-State's most successful researchers to make major adjustments in their team building and project management skills to remain competitive.

3.1.2 Recommendations

- **Diversify our extramural portfolio.** Begin by targeting one funding agency from which to receive increased research support and assign an individual to facilitate these interactions. For example, K-State has little support from DARPA, yet given a technically-competent individual who is charged with selling K-State research to DARPA and in determining what DARPA is interested in supporting, the situation could be significantly modified. K-State could then sequentially apply this strategy to other agencies.
- **Implement administrative strategies that support "mega" projects.** Many of the specific recommendations provided in 1.1.2 apply here as well. Furthermore, actions that promote interactions of K-State researchers within K-State, the state of Kansas, and local communities will enable the documentation of impact. Fostering interactions amongst the K-State faculty and their collaborators at other institutions will facilitate the formation of larger research groups. Thus, many of the recommendations from other sections that encourage a focus on the research culture also will support this goal.
- **Create a "one-stop shop" for all K-State-industry interactions**. Realign offices and responsibilities such that potential industrial partners could access K-State resources through a single portal. This office would include the services currently provided by NISTAC/KSURF,[12] Industry Relations in the K-State Foundation, and certain services

[12] National Institute for Strategic Technology Acquisition and Commercialization/Kansas State University Research Foundation.

from the Office of Sponsored Research. Oversight of these activities could fall under the Assistant Vice President for Research (see 2.2.2).

- **Create effective strategies for obtaining congressional earmarks**.
- **Increase extramural research activity across units**. Encourage more units to engage in extramural research activity, so that by FY12, extramural funding increases not only in dollar amount but in the types of units proposing and earning external grants.

4. FACULTY RECRUITMENT AND RETENTION

4.1 Recruitment

4.1.1 Findings

The current infrastructure for RSCA limits the ability of K-State to attract and retain junior and senior faculty. Colleges and departments routinely struggle to fund competitive start-up packages, which may easily top $500,000 over a 2-3 year period. Putting start-up packages together is very often a gamble for department heads due to inconsistencies of support from Deans and Central administration. Further, there is little opportunity to build, through targeted hiring, expertise within one particular research area or at the intersection of disciplinary areas. In addition, finding suitable employment for spouses remains largely the job of the candidate and his/her spouse.

4.1.2 Recommendations

- **Provide additional and consistent central support for start-up packages**. The implementation of consistent, transparent policies and practices for central, college, and department support is crucial for successful and competitive recruitment of prospective faculty.
- **Consider cluster hires**. Cluster hires provide the opportunity for a group of faculty to be recruited to positions aligned with a common research theme. This strategy often begins with the hiring of an eminent scholar in the field, and then several positions for which the senior scholar mentors the development of more junior faculty are then filled. Alternately, the university hires a group of scholars already functioning as a cluster at another institution (a strategy employed here in Physics in the 1990s). In either case, cluster hires must be carefully screened for collegiality and synergy, and mentoring plans must be carefully monitored. Most importantly, the interests of a particular department or research program at K-State must drive this hiring process.

4.2 Retention

4.2.1 Findings

- **The University does not provide consistent support for successful RSCA**. K-State must not only recruit excellent faculty; it must also retain those faculty. K-State faculty face challenges in setting up, maintaining, and expanding their labs; they have reduced opportunities for cost-shares on grants; and they often must use sub-standard office and laboratory space. Such an environment not only hinders their productivity but also makes them susceptible to counter-offers of employment from other universities. For instance, during the past five years, Physics lost three faculty members to peer institutions, primarily because those institutions could offer better research facilities and higher salaries. Such losses are not only a financial burden to the department, college, and university, but also a loss for the RSCA profile of K-State.
- **Faculty workloads are greater than peer institutions and increasing.** K-State leaders have largely passed any cuts to the University budget proportionally on to the units

through "across the board" reductions. This has resulted in departments with unacceptably high faculty teaching loads. The current environment of budget limitations is only exacerbating this problem. K-State faculty teaching loads are often significantly higher than our peers. This, coupled with an expectation that faculty research productivity should be comparable to that of our peers, creates a nonproductive stress in the system and negatively impacts faculty recruitment and retention.

- **Faculty salaries are a significant problem in faculty retention**. Average salaries at K-State are consistently in the lowest quintile on AAUP surveys and similar salary evaluation scales. Assistant Professors often are recruited at "market," but quickly begin to lose ground when average raises fail to keep pace with those at other universities. Two years (and possibly more) with no pay raise exacerbates this problem. Until the current pay freeze, there were three ways to get a pay increase at K-State other than through merit increases. One was through promotion in rank to Associate Professor, Professor or University Distinguished Professor, or through one of the related Professorial Performance Awards; the university has maintained these raises in spite of the overall pay freeze. A second means of obtaining a raise was for the Department Head to recommend to their Dean that particular faculty be granted one (or more) $2,500 "block" raises. These raises were to help prevent retention problems by providing additional base salary increases when there was no emergency, and to help ensure that productive faculty who were not "superstars" were not perennially saddled with "average" raises that failed to adequately reward them for their performance over an extended period of time. This source of funds has not been available during the pay freeze. If possible, such funds should be made available again after the pay freeze is lifted with "research excellence" being a major reason for their award. The third way to get a raise is for a faculty member to seek/receive an offer from another university. K-State can sometimes counter these offers and sometimes cannot. Faculty pay is virtually always a key issue in such negotiations. Raises given for this reason encourage faculty to look outside for new positions.
- **Faculty working conditions are often not as favorable as those offered elsewhere**. There are many things that contribute to working conditions, including facilities and equipment available, quality of graduate students and colleagues, geographic location, technical support staff, attitudes and policies towards research activities, and the overall research climate. For example, results from the Faculty Survey[13] (Appendix 3) show that 51% of respondents indicate that their programs lack sufficient Graduate Research Assistants, 32% indicate that their programs lack sufficient Undergraduate Research Assistants, and 56% indicate that that poor graduate student recruitment and retention compromises faculty success. A second important example is the recent salary policy that prevents faculty from giving raises to staff who are employed full-time on grant monies, even though there are monies available in the grant for such purposes. This policy, when combined with other decisions regarding the distribution of budget reductions, provides strong support to many researchers' impressions that the Central Administration does not know how to foster a climate that encourages research. The lack of a welcoming climate, even more than inadequate salaries, encourages faculty and

[13] The committee gathered information about the state of the RSCA enterprise at K-State from a formal survey of the faculty and staff.

support staff to consider alternative employment. Even if salaries are an issue, climate shouldn't be.

- **Mentoring programs at K-State have been fragmented and lacking in focus**. Although some departments and colleges have implemented formal mentoring programs, in many cases mentors for new faculty are assigned upon arrival by a department head and then forgotten, or mentor relationships result from ad hoc interactions between faculty members within a department.

In sum, K-State does not do enough to value the research, scholarship, and creative activity of both junior and senior faculty, to create an environment in which it can be readily pursued, and a culture that expects and rewards it.

4.2.2 Recommendations

- **Create a new culture to promote research, scholarship and creative activities at Kansas State University.** Once again we emphasize the importance of a cultural change to set a climate in which RSCA is at the forefront of the university's priorities. Such a climate will enhance K-State's ability to draw and retain top-notch faculty for our campus.
- **Provide appropriate, functional facilities for the RSCA endeavor.** (See Section 6.)
- **Recognize the importance of recruiting high quality graduate and undergraduate students.** The investment of resources for high quality research assistants yields benefits for faculty in terms of their research and for the students in terms of their professional development. As noted elsewhere in this report (Section 5), such assistance must be accompanied by appropriate support for the graduate research assistants, in terms of both financial remuneration and faculty mentoring.
- **Pay faculty well.** Recruitment and retention can be enhanced with competitive compensation. It is well documented the K-State faculty are poorly paid by all metrics and that this fact is a source of low morale.
- **Reward a consistent, department-level system of faculty mentoring**. While the current campus-wide New Faculty Orientation program is a good first introduction to the university, this campus-wide activity needs to continue with department-level mentoring and with opportunities for cross-disciplinary interactions that persist beyond the first year. Discipline-specific mentoring should include: identifying areas of investigation; assistance in writing grants and preparing publications; time management; pedagogy; and the mentoring of graduate students and post-docs. Further, as proper mentoring is not a guarantee of success, such mentoring should be linked with annual evaluation efforts by department heads, deans, and tenure and promotion committees and with their resulting recommendations for reappointment during the probationary period.

5. GRADUATE STUDENT RECRUITMENT AND RETENTION

A university's RSCA cannot be first-rate without high quality graduate students. One may say that because graduate students, under the guidance of their advisors, do much of the RSCA work, they are the foot soldiers of the RSCA enterprise. Indeed, before they graduate, graduate students contribute their own creativity to the RSCA of a university through a thesis, dissertation or other significant creative work. Therefore, it is absolutely essential that we recruit and retain the best graduate students so that our RSCA activities flourish. Moreover, the days when a bachelor's degree was sufficient for success in all endeavors beyond the university are passing, and there is rapidly growing need for individuals trained beyond that level in the graduate school.

Thus graduate education must become a primary focus of the University for both the sake of the University and its students and for the benefit of the community and the State.

5.1 Stipend and Tuition for Students Employed as Graduate Assistants

5.1.1 Findings

- **Graduate Student Tuition Compensation.** At K-State graduate students employed on a 0.5 tenths appointment (GTAs, GRAs, GAs, or a combination of appointment types) for a specified time periods (September 1-November 17 and February 1 – April 17) receive resident tuition benefits that allows them to pay tuition at the in-state rate. For GTAs employed on a 0.5 tenths appointment, K-State pays for a maximum of 10 hours of tuition fall and spring semesters and 6 hours for summer semester. Graduate students who were on 0.5 appointments spring semester pay resident (in-state) tuition if they enroll in classes during the summer. For GRAs some academic programs pay higher stipends to provide funds to pay tuition. All of our peers and aspiring peer institutions (see Appendix 4) pay tuition for all of their graduate students on such appointments. Some universities pay a maximum of 9 hours tuition fall and spring semesters and 6 hours for summer and others simply pay "full tuition." In most instances funding to support tuition payment is provided from state funds for graduate teaching assistants and from grants and other university funds for graduate research assistants.
- **Graduate Student Stipend Compensation.** The average nine-month stipends for 2009 at K-State were $11,400 (GTAs), $11,600 (GRAs), $14,700 (combined GTA and GRA appointments), and $6,500 (GAs). These levels compare poorly to some of our peer and aspirational universities as listed in Table 1 (Appendix 4). K-State's current minimum stipends for graduate students on an appointment (GTAs, GRAs, and GAs) are $7,500 and $8500 per nine months for masters and doctoral students, respectively. These minimums are lower than those of all of our peer and aspiring peer institutions except North Carolina State and Mississippi State University. Stipends levels vary by academic program, type of appointment, and source of funding.
- **Graduate Student Cost of Living.** The Office of Financial Aid estimates the cost of attending K-State as $21,600 (GRAs/GAs) and $14,200 (GTAs) for fall and spring semesters if the student enrolls in 10 hours each semester on appointment. Estimated costs of attending K-State for 12 months are $28,000 (GRAs/GAs) and $18,800 (GTA). The difference in the cost of attending is due to the cost of tuition.

5.1.2 Recommendations

- **Institute a policy mandating institutional payment of tuition.** Provide payment for up to 10 hours each for fall and spring semesters and 6 hours summer for all graduate students on 0.5 appointments.
- **Identify a range of funding sources to support the payment of tuition,** including grants, the K-State Foundation, corporate sponsors, alumni, state support, and donors.
- **Create uniform guidelines for compensation.** Graduate assistants' total compensation (salary, tuition, and benefits) within a specific discipline should meet or exceed the following criteria:
  - *Uniform* within an academic program.
  - *Fair*, equal to or greater than the Office of Financial Aids' annual estimated Cost of Attending K-State.
  - *Competitive* to attract the highest quality graduate students.

- All graduate students on appointments are eligible to enroll in the GTA/GRA Health Insurance Plans.

5.2 Graduate Student Fellowships

5.2.1 Findings

- **Internal Fellowships**. The majority of our peers and aspiring peer institutions have graduate fellowships programs. The only fellowship programs coordinated by the Graduate School are the Alvin and Rosa Lee Sarachek Predoctoral Honor Fellowship in Molecular Biology, the Timothy Donoghue Graduate Stipend Support Fellowship and the recently announced KSURF Fellows Program. These fellowships are limited in number, in the amount of support, and in the students who are eligible for support. For example, the Sarachek Fellowship is limited to doctoral students who have completed their preliminary examinations and are conducting research using molecular biological techniques.
- **External Fellowships**. There are fewer than five current K-State graduate students who have been awarded nationally competitive fellowships. Recruiting students with these competitive fellowships would bring high quality students to KSU and would enhance K-State's recognition as a premiere research institution.

5.2.2 Recommendations

- **Fund Graduate Student Fellowships**. Initiate development activities to obtain financial support from alumni, the Foundation and corporate sponsors to fund:
  - University-wide Competitive Fellowship Programs.
  - A Graduate Student Professional Development Grant Program to support special workshops and seminars to enhance their teaching effectiveness and to prepare them for their roles as future faculty, increase their leadership and communication skills, and increase their competitiveness for postdoctoral or research positions or industry and government.
  - Dissertation Completion Grants.
  - Travel Grant Program to support students in presenting their scholarly work at regional, national and international meetings.
  - Fellowship Information and Support. Expand the duties of the Assistant Dean for Scholarship Administration to provide information and support to graduate students preparing predoctoral and postdoctoral fellowship applications similar to the support undergraduates receive when applying for prestigious scholarships.
- **Promote Graduate Student Recognition.** Provide the same level of recognition of graduate student scholarly achievements including national competitive fellowship and awards as is provided undergraduates for prestigious awards such as the Goldwater, Truman, etc.
- **Enhance information about fellowship and scholarship opportunities on the Graduate School and departmental websites.** The Graduate School website should provide a comprehensive list of graduate fellowships and scholarships available at K-State and have a section listing external competitive fellowships.

5.3 Marketing the Graduate School

5.3.1 Findings

- **Current Marketing of the Graduate School.** Currently graduate programs and graduate faculty are responsible for marketing their graduate programs. The Graduate School's recruitment efforts have focused on participating in regional and national

meetings which attract large numbers of students from underrepresented groups with the goal of recruiting more of these students to attend graduate school at K-State. A comprehensive marketing plan would increase the visibility of K-State as a research university with outstanding graduate programs.

- **Graduate training of minorities in research is an important topic for numerous Federal agencies**. Currently K-State has a NIH Bridges to the Bachelors Program but is lacking in other opportunities as compared to The University of Kansas. Opportunities to compete for Initiative for Maximizing Student Diversity (IMSD) and Post-Baccalaureate Education Training Program (PREP) exist at NIH. Similar programs are available through USDA's multi-cultural scholars program, and for NSF. A need exists from a central office to identify these opportunities and coordinate the writing of these institutional grants, which currently is lacking at K-State.

5.3.2 Recommendations

- **Develop a comprehensive marketing plan to support the recruitment of the "best and brightest" graduate students and to promote their success**. This plan would market graduate programs to perspective graduate students that have the same emphasis and support including personnel as the current undergraduate recruitment activities. The plan must include students from underrepresented groups from all disciplines. This would require additional funding to increase the competitiveness of K-State's offers to these individuals and ensure retention. The cost effectiveness of a university-wide recruitment fair that provides prospective students support to visit campus and learn about the research being conducted in the various disciplines should be evaluated.
- **Create an organizational structure within the graduate school that integrates two important components for recruitment and support of under-represented groups to graduate school**.
  - Initiatives to promote research and scholarly activities for undergraduates, such as the McNair and Developing Scholars Programs, to better prepare them for graduate school, and
  - Our own recruitment and support activities to bring these students to K-State.
- **Establish a central office to identify opportunities for support and recruitment of under-represented groups** to research careers at K-State and coordinate the writing of these institutional grants.
- **Increase representation of the Graduate Student Council on advisory boards and university committees and task forces** with the goal of changing K-State's image as an undergraduate institution while simultaneously providing leadership opportunities.

5.4 Graduate Student Mentoring

5.4.1 Findings

The Council of Graduate Schools has documented that the quality of mentoring is integral to the success of students completing their graduate programs (2009[14], 2010[15]). Mentors facilitate the assimilation of the student into the academic and research culture, promote integration that is essential to improving a graduate student's successful completion of their program, guide the student through their research, facilitate

[14] Council of Graduate Schools. (2009). Broadening Participation in Graduate Education. Washington, D.C.: Author.

[15] Council of Graduate Schools. (2010). Ph.D. Completion and Attrition. Policies and Practices to Promote Student Success. Washington, D.C.: Author.

socialization with professional organizations and assist students in navigating the job market (Council of Graduate School, 2003[16]). As is evident from this list of responsibilities, the role of the faculty mentor varies with each stage of a student's graduate program. Even though mentoring has been recognized as essential to degree completion, especially for students from underrepresented groups, faculty mentors do not receive any formal guidance about the scope and nature of mentoring.

The quality of and concern for graduate student mentoring are not uniform across campus with some disciplines showing considerable deficiencies. Such a lack of concern and quality is both inhumane and a serious detriment to high quality scholarship. In addition it results in students discontinuing their program or increasing the time to degree.

5.4.2 Recommendations

- **Create a culture of graduate student mentoring** at K-State that allows graduate students to achieve at the highest level.
- **Provide training for faculty to enhance their mentoring skills.** Faculty should encourage and mentor graduate students to facilitate their achievement of personal and professional goals and complete their degrees in a reasonable period of time. Faculty should encourage and assist students in publishing their theses and dissertations. Faculty should encourage students to present their research and scholarly work at regional, national and international meetings.

5.5 Training and Mentoring of Postdocs

5.5.1 Findings

Postdoctoral researchers have become a common and important part of scientific research groups. They are at a career stage intermediate between graduate school and their professional occupation and as such are often overlooked and even "institutionally lost" in the scheme of the university. The committee believes they belong within the graduate school since they are foremost still in a training stage. Working conditions for these employees vary, as does the training and mentoring that they receive to help make them competitive for permanent positions. National granting agencies are now requiring mentoring plans for postdocs as a part of grant proposals. Some of the needs of postdocs can be met institutionally with participation in university-wide training events currently aimed at graduate students.

5.5.2 Recommendations

- **Foster the professional representation and development of postdocs at K-State.** Develop a job category and title specifically for postdocs that are applied university wide. Also develop a means of tracking postdocs on campus and provide them with access to university-wide training opportunities that already exist for graduate students. Give postdocs opportunities to be represented as a class in appropriate university activities. Educate faculty for best mentoring practices of postdocs and with information that can be used in grant applications.

[16] Council of Graduate Schools. (2003). On the Right Track: A Manual for Research Mentors. Washington, D.C. Author.

6. RESEARCH SPACE AND FACILITIES

The success of the RSCA enterprise relies on the availability of high quality space in which to conduct experiments/simulations/create new art or design/etc., to evaluate the product of the scholastic endeavor, to interact with collaborators, and to write. It also relies heavily on the availability and quality of research facilities that might occupy some of those spaces. The committee gathered information on the state of research space and facilities from the Faculty Survey (Appendix 3), from verbal feedback from interested parties, and by comparison to our peers. The spaces and facilities have been separated into those largely devoted to an individual researcher (Section 6.1), those shared by many (Section 6.2), and the nature of the support structure provided by the University (Section 6.3).

6.1 Individual, Physical Space

6.1.1 Findings

- **Physical space is important to faculty recruitment and retention.** Faculty Survey respondents were nearly unanimous in finding that the quality of space available for research is important for the recruitment and retention of faculty (99% agreement). Faculty success will determine the future of K-State. If we are to recruit and retain the best and brightest faculty members, we must improve the quality of our research spaces.
- **Various types of space used for RSCA are insufficient and of poor quality.** More than half of the Faculty Survey respondents found individual research spaces to be deficient (see Figure 1).

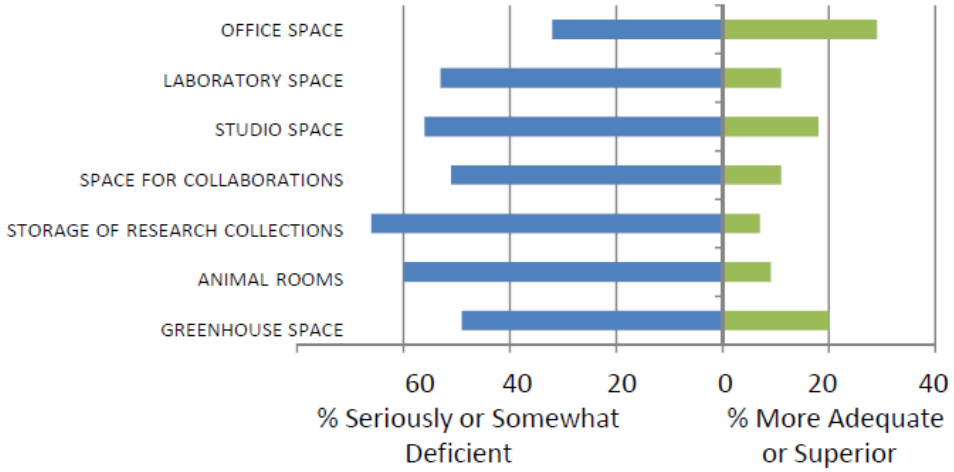

Figure 1. Survey responses regarding the perceived quality of their individual research spaces. Data are presented only for those respondents who indicated the subject was applicable. Data for those individuals rating their space as "adequate" are not shown but can be calculated by difference.

- **The physical infrastructure of those spaces currently used for RSCA is poor.** Unfortunately, 87% of survey respondents indicated that deficiencies in building infrastructure had a negative impact on their research. Furthermore, more than half of the survey respondents found some aspect of the building infrastructure to be deficient (see Figure 2).

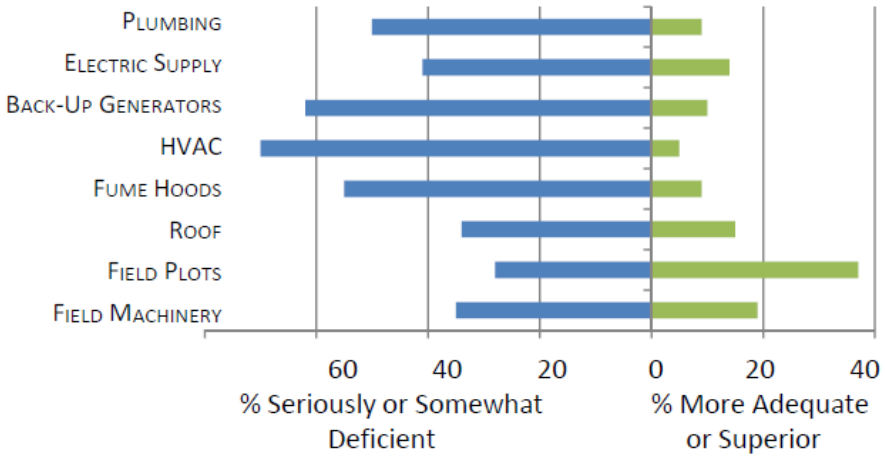

Figure 2. Survey responses regarding the perceived quality of their research buildings. Data are presented only for those respondents who indicated that the subject was applicable. Data for those individuals rating their space as "adequate" are not shown but can be calculated by difference.

The need for back-up generators is particularly critical: over 60% of respondents, representing a range of disciplines, report their work in jeopardy without this resource. A notable exception is the deemed quality of field plots and machinery where nearly 70% of the respondents rated the resources adequate or higher.

- **Many faculty members have insufficient office space** for fundamental research and creative activities. Some members of the faculty are sharing offices and lack access to physical resources that would enable them to increase their productivity. Modern Languages, for instance, has four tenured faculty who each share office space with un-tenured faculty; further, this shared space is appropriate in size for one instructor, not two.

6.1.2 Recommendations

- **The quality of existing individual research spaces must be improved.** Ensuring that the spaces currently used for RSCA are of adequate quality should be a high priority. Improvements to research space will be a clear and tangible message to the faculty that research is important.
- **The quality of collaborative research space must be improved.** Faculty across all disciplines do not have sufficient shared meeting space for collaboration, including space for survey labs, conference rooms, and studios.
- **New buildings or significant expansions should promote inter-group collaborations**. These spaces should be occupied based on research theme and not based upon discipline. Future building should be designed to foster physical interactions between its occupants which will promote sharing of ideas and stimulate collaborations. Examples of such buildings include Bell Labs and NCAR in Boulder, CO. As described in section 1 of this document, the trend to "mega" projects will require a faculty that has experience with and an appreciation for interdisciplinary activities. By designing research spaces with this goal in mind, the overall success of the faculty research endeavor should increase.

- **Establish policies and mechanisms for periodic upgrades of research spaces**. Expand the role of the Associate Deans for Research to coordinate necessary building upgrades and to provide recommendations of themes around which buildings should be populated.
- **Initiate and enhance philanthropic and industrial funding for renovation or construction of new buildings via fertilization of contacts with the KSU Foundation.** Realign and expand the K-State Foundation goals from undergraduate scholarship to include buildings and endowed chairs etc.
- **Develop procedure and policy for equitable distribution of physical space.** Currently physical space for faculty offices and laboratories varies dramatically across the University. Central administration should determine the minimum requirements for faculty office space and assure that all faculty members have dedicated functional office space. It should also develop a mechanism to make fair decisions regarding space across campus.

6.2 Shared Space and Facilities

Success in modern research is promoted by access to resources or equipment that is too large, too expensive, or too complex for any individual to purchase, operate or maintain. Most institutions have realized that housing such equipment in centrally managed facilities results in the most efficient use of resources and provides an important service to the research community. The presence of these facilities can positively influence funding decisions and provide K-State with a competitive advantage as well as act as recruitment tools.

6.2.1 Findings

- **Lack of shared instrumentation hinders research.** K-State's shared research instrumentation facilities are haphazard, decentralized, and opportunistic. The physical spaces in which they exist are of variable quality. Some facilities have trained personnel, some don't. Some maintain service contracts, some don't. Some facilities impose user-fees, some don't. Two are supported centrally. A few receive funding from colleges or departments. Most exist because of the perseverance and financial support of one or more committed faculty members. A fee-based only system of support leads to fees that are too expensive, especially for new initiatives. On the other hand, if reasonable fees are charged, then there are insufficient funds to pay for technical support and training, administration and long term maintenance and replacement of instrumentation.
- **Faculty want shared facilities.** More than half of the Faculty Survey respondents (Appendix 3) indicated that co-location of researchers, laboratories, equipment, and services based on thematic areas would promote economy of operation and enhance K-State's collaborative research. Faculty members believe that shared facilities which provide access to specialized equipment and trained personnel would be of great value to promoting research. Three-quarters of those responding indicated that the facilities should (a) provide facilities managers and (b) training for graduate students and postdocs to use these facilities.
- **Central oversight of centrally-supported, shared research facilities is needed.** Central, shared research facilities, including scientific instrumentation and shops, need central support and oversight. Faculty members are the driving force of innovation, grants and scholarly work. Tasking them with the day-to-day running of such a facility is not the best use of their time and talents. Central administration should provide administrative support for core facilities while allowing autonomy in day-to-day operations.

6.2.2 Recommendations

- **Create shared research instrumentation facilities.** Identify new or existing equipment and expertise that is better used through a shared and user-fee- supported structure. To the extent possible, co-locate equipment by theme and provide in-house technical assistance. Selection criteria should include:
  - The ability to support current areas of research strength.
  - The ability to support a large number of researchers from many departments.
  - The ability of the facility to interface and synergize with large university-wide initiatives.
  - The ability to support recruitment and retention of new faculty at all levels, graduate students and postdocs.
- **Provide central financial support and oversight to key facilities**. Central administration should provide financial support to keep user fees reasonable and to ensure both short term and long term sustainability in key facilities such as the Electronics Design Laboratory, the Machine Shop, the Integrated Genomics Facility, GIS/Data Commons, and the Microscopy Facility. This support could be in the form of salaries, supplies, service contracts, training, and equipment maintenance and replacement. Provide Central oversight to ensure quality and that the service remains relevant, and to seek state salary lines for shared facilities managers.
- **Make the presence of these Central Facilities better known to the K-State community**. Create a website linked to K-State Research page and then individual web-pages for each facility.

6.3 Central Facilities

6.3.1 Findings

- **K-State Libraries** are a significant component of the research, scholarship, and creative processes of all disciplines. A number of disciplines view the library as their laboratory and its resources as the equipment needed to achieve scholarship and creative goals. Data from the Faculty Survey strongly indicate that a significant number of K-State faculty believe additional library resources are needed, particularly in regard to increased access to journal literature.
- **Information Technology (IT)** is not a luxury for research, scholarship, and creative activity, but comparable to a utility like plumbing and electricity. However, at K-State, IT resources across the university suffer from K-State's tradition of de-centralization – particularly in the social sciences, arts, and humanities, where such resources are less likely to be purchased through grants. Faculty members in all disciplines report a need for regular hardware and software upgrades. Further, there are significant inequities between departments and units in terms of desktop support services: some employ a computer technician, while others do not, but all need assistance beyond the resources of the IT Help Desk. These inequities do not necessarily divide by discipline; rather, they emerge as a result of individual departments and units providing their own IT resources without the support of central administration.
- **Division of Facilities Planning (DFP).** DFP acts as the service provider for all building utilities, maintenance and renovations activities on campus. DFP pricing and the quality of service can be capricious.

6.3.2 Recommendations

- **Provide increased library funding** for access to core journals, monographs, reference tools, and bibliographic resources. Remember that the library must provide service to both students and scholars.
- **Charge the new CIO/VP for Information Technology Services to conduct an IT audit for each department and unit**, in order to review the current decentralized model for IT resources and, in consultation with departments and units, determine whether responsibilities for some or all hardware, software, and support services might be best transferred to the colleges or to the university.
- **DFP Administration.** DFP should be administered with an attitude of service for the campus RSCA community. Staff should meet reasonable expectations for competence and quality of work. Faculty members have the responsibility to specify and communicate their needs properly.

7. RESEARCH ADMINISTRATIVE SUPPORT

7.1 Sponsored Research Activities/PreAward Services

7.1.1 Findings

There are numerous anecdotes regarding the inability of PreAward Services to process submission to granting agencies in time to meet deadlines. There are similar anecdotes regarding the processing of funded awards being delayed by several to tens of months as the funded applications are buried on the desks of PreAward Services staff until contacted by worried departments or faculty. Many faculty and department staff know that PreAward Services staff will accept proposals for processing even on the day that they are due. Proposals submitted at the "last minute" often are given priority over those submitted in a timely manner, which leads to inadequate time and attention being paid to the timely-submitted proposals members and the last minute submission of these proposals as well. Faculty and staff quickly learn that submitting a proposal in a timely manner is of little use since it will not be looked at by PreAward Services staff until the last minute. Faculty Survey data (Appendix 3) are consistent with the anecdotes as > 30% of those answering the question found PreAward Services to be inadequate.

Department and college staff do not have access to training programs and often lack current knowledge of pre-award and post-award processes and procedures, including proposal/budget development and payment processing. The faculty survey results are consistent with the existence of this problem. For example, the Engineering Experiment Station shifted responsibility for proposal preparation to PreAward Services ~3 years ago, but continues to draw SRO resources as a "proposal generation center".

7.1.2 Recommendations

- **Add additional positions to the Office of Research and Sponsored Projects (ORSP),** including additional grant/contract specialist positions for the Office of PreAward Services and an additional Development Director to the Office of the VP for Research.
- **Publicize and enforce current policies regarding the timely submission** of grant proposals. Procedures should be implemented to identify faculty members who routinely violate these policies and to work with deans and department heads for corrective actions, as needed. These procedures also must recognize that some RFPs have very short turn-around times, and that these deadlines must be accommodated as well.

- **ORSP staff should provide training for faculty and department staff** in areas such as budget preparation, Cayuse 424 (collaborative grant preparation software) use, etc.
- **ORSP should increase efficiencies of operation by further development and dissemination of computer-based tools.** ORSP has already implemented computer assistance with multifaceted benefits to the K-State research community.
  - Continue to support the use of Cayuse 424 grant-preparation software.
  - Continue to support and distribute campus-wide the electronic intra-K-State grant submission transmittal system (SP001) that was developed by College of Engineering staff. Further develop the system for other campus-wide forms, such as overdraft and pre-award costs.
  - Many of the more active research groups and departments have employed grant writing and proposal preparation specialists to aid in their work. These individuals can and have significantly reduced the workload placed on PreAward Services personnel and improved the overall research success of the University. Yet, for this cadre of individuals to be successful, they must have access to data compiled and managed by PreAward Services. Specifically, providing this group full access to a read-only version of PreAward Service's current & pending database would facilitate proposal preparation.
  - Transfer, as faculty submit proposals, a copy of curriculum vitae, BioSketch files, and conflict of interest forms into a database for this group of proposal specialists. This information sharing would promote the efficiency of all involved.

7.2 Coordinated Central Assessment of Graduate/Postdoc Traineeships

7.2.1 Findings

Independent assessments of graduate/postdoc training programs have become essential for obtaining grants to fund them. In some cases assessment is requested only of current participants, but in some cases assessment of students who graduated one to several years ago also is requested. Current practice often has P.I.s developing their own assessment tools that lack validation and proven effectiveness, which reduces the effectiveness of the assessment and reduces the chances for funding.

7.2.2 Recommendations

- **Designate the Office of Educational Innovation and Evaluation (OEIE) as the external evaluator** for all K-state graduate/postdoc traineeships.
- **Provide financial support to OEIE** such that its assessments can be provided at no cost to the projects. In some cases, this cost could be a part of the often-required university funding match.
- **Develop assessment tools** that can be generalized for use by multiple groups (NSF training grants, DoEd GAANN fellowships, etc.). Centralization of effort will increase OEIE's efficiency and encourage the utilization of best practices by research faculty. (CORES[17] currently is paying OEIE to develop some assessment tools and to make a library of assessment tools available for such purposes.)
- **Track graduate student and postdoc alumni** with the help of the KSU Alumni Association.

[17] Collaborative for Outreach, Recruitment and Engagement in STEM (Science, Technology and Mathematics).

7.3 Central Support for "Broader Impacts" Activities

7.3.1 Findings

Many NSF and USDA requests for proposals require proposers to describe the "broader impacts" of the research on society and to have "outreach" activities. Developing programs such as these usually are beyond the abilities of any individual P.I. K-State has numerous programs that can fill these needs already in operation, but in many contexts and organized in a typically decentralized manner. Providing a central source of information could enable broader faculty participation and strengthen faculty funding requests.

7.3.2 Recommendations

- **Provide an administrative individual** who can manage information regarding K-State "broader impacts" and "outreach" resources.
- **Develop and maintain a "broader impacts" and "outreach" web site** of K-State resources that lists these activities that are necessary for all NSF and most USDA projects. The website should include:
  - A list, with contact information, for existing programs that describes the activities conducted, and areas of interest for collaborating faculty.
  - Sample language that can be used in proposal preparation.
  - Descriptions of existing relationships with minority-serving institutions, community colleges, K-12 programs, etc., with the K-State contacts for each and areas of potential interest.
  - Leverage programs already in place through the Cooperative Extension Service and other Public Service related groups.

7.4 Resources to Identify Potential Sponsors for Research

7.4.1 Findings

In the Faculty Survey (Appendix 3), many faculty members expressed frustration in identifying sources of funding for RSCA activities. Nearly 46% of those answering the question rated the ORSP as deficient. For some departments and programs, this concern is not an issue because established funding agencies such as NSF, NIH, NASA, DoD, DHS[18], USDA, and DARPA have known funding priorities to which those faculty members apply. In many units where RSCA has not been a primary expectation, however, the funding agencies are different and more dispersed, and neither ORSP nor many faculty have in-depth knowledge of the funding agencies or their priorities.

7.4.2 Recommendations

- **Improve the ability of the ORSP to identify and describe sources of funding.**
- **Use the University Small Research Grants (USRG) Program to assist faculty members in finding funding sources** for RSCA activities, by including discussions with potential funding groups as a suitable objective for these grants. All USRG applicants should be given a list of potential funding sources in addition to a constructive written review of their proposals, regardless of whether the submitted proposal is funded.
- **Expand the current grant-writing workshop series** offered by ORSP to include specific workshops focused on the arts, humanities, and social sciences.
- **Add specialty expertise in University/Industry and University/ Foundation interactions to the ORSP.**

[18] Department of Homeland Security.

- **Expand and develop new opportunities for congressionally directed funding.** This may involve determining if the resources available to the Director of Governmental Relations are sufficient.
- **Expand corporate and foundation funding (see 7.6.2).**

7.5 Resources to Identify Potential Collaborators

7.5.1 Findings

Significant barriers exist that hinder collaborative interdisciplinary RSCA activities at K-State. Discussion between several colleges and ORSP has identified a need to facilitate the formation of collaborative teams. Faculty members often are unaware of work conducted by their colleagues on campus, and this lack of knowledge can significantly limit proposals. This problem is perceived by faculty across nearly all disciplines on campus. If faculty in one department need to identify colleagues in an area that is not closely related to their own to address the requests of a granting agency, then the problem can be even more intractable. Yet, for example, larger NSF and USDA proposals now require social and human perspectives to accompany strong experimental science, making such efforts all-the-more important.

7.5.2 Recommendation

- **Charge the new VP for Communication and Marketing to develop and coordinate a mechanism to mine the talents and interests of the faculty.**
- **Charge PreAward Services to develop a collaborative portal** such that faculty could easily search for others with research activity in a specific area. This online collaborative space would gather information about K-State faculty expertise, projects, and collaborative opportunities, including current collaboration needs and a registry of major equipment availability that might be consulted as grant proposals are developed and justifications advanced for the feasibility of collaborative projects at K-State. This resource should be easy to search and easy to update.

7.6 Industry and External Interactions

7.6.1 Findings

K-State's interactions with corporate and foundation partners are very limited, and what exists is due primarily to the actions/interests of individual faculty members. The university, as such, lacks individuals who could help potential corporate partners identify faculty with appropriate interests and abilities. Moreover, lack of cross-knowledge of other projects on campus funded by the same corporate partner can result in embarrassing interactions between the university and the corporate partner where the right hand may not know what the left hand is doing. This lack of knowledge may also keep momentum from building to enable multiple interactions with the same corporate sponsor.

7.6.2 Recommendations

- **Develop a "concierge" office to build partnerships and relationships** between the university and its current and potential corporate sponsors. This office also should serve as an initial point of contact for companies looking for information on the university and its faculty. The concierge staff should be sufficiently knowledgeable of university activities to help corporations quickly identify faculty with strengths in their area(s) of interest. This recommendation is parallel to the recommendation of 3.1.2, third bullet and bears repeating.
- **Involve the KSU Foundation** more heavily with RSCA activities and the identification of corporations and foundations that share these priorities.

- **Actively indentify and pursue external philanthropic foundations** such as Keck, Gates, and Packard.

8. UNIVERSITY FINANCIAL SUPPORT FOR RESEARCH

8.1 Distribution of Internal Monies/Sponsored Research Overhead

8.1.1 Findings

- **Trends in Overhead Distribution.** At other universities the sponsored research overhead (SRO) distribution varies widely, but some trends can be discerned. Central administration takes from 30 to 96%. At K-State, the distributions are 60%, 5%, and 35% respectively to central administration, the colleges, and the department, with some variation depending on the college. These fractions were set roughly 45 years ago by President McCain with no surviving explanation for how these numbers were determined. At K-State, many, but not all, departments return some of the SRO to the faculty who received the grant.
- **SRO Use.** Although the items on which SRO monies are spent are relatively easy to discern, the purpose underlying those expenditures is difficult to discern. In practice, anything that has been found wanting for monetary resources over the past 45 years could have found aid from SRO. These needs include RSCA as well as instructional activities, with the most common use probably to replace OOE funding, which has been declining steadily. Consequently, SRO funds are well dispersed throughout budgets at all levels and very difficult to track separately from other sources of routine operating funds.
- **The BRI.** The BRI imposes a significant drain on the SRO funds allocated to the central administration. This drain has negative repercussions across the entire university by restricting contributions to start up funds for new faculty, matching support for grants, etc. More importantly, the use of SRO funds for this purpose has been remarkably non-transparent and is one of the sources of campus-wide distrust and suspicion of the central administration.
- **The Olathe campus**. K-State has recently begun the development of an Olathe campus, purportedly to pursue bioscience/animal health opportunities. The specific mission of the Olathe campus relative to the Manhattan campus has not been clearly articulated. Furthermore, the Olathe campus is already extracting a significant fraction of the centrally-controlled SRO, and these expenditures are only expected to increase with the expanded staffing currently taking place. Many faculty members are skeptical of the wisdom of expanding in Olathe given the limited resources available to the main campus and our recent history with administratively-driven, high-stakes ventures (such as the BRI). Continuing on this path without gaining some level of faculty endorsement will likely result in deepening resentment on the part of the faculty.

8.1.2 Recommendations

- **SRO funds should support the RSCA enterprise.** It is imperative that SRO funds obtained from grants from the RSCA enterprise be used to promote that enterprise and not to bail out other programs, such as instruction, that may be in need of support. To insure proper use of SRO we must:
  - *Define SRO Usage.* Define reasonable and unreasonable usage of SRO funds and encourage best practices for SRO use at all levels.
  - *Overhead distribution.* Reconsider the overall distribution of SRO with input from all the stakeholders. K-State's current distribution is not out of line with that at other

universities, so major changes may not be warranted. However, this reassessment of distribution should be made to ensure that the RSCA enterprise receives its due and ample support and that SRO funds are not used for non-RSCA purposes.
    - *Unit Level Application of SRO.* At all levels, instill a philosophy that SRO funds should be used to promote the RSCA enterprise and not fall prey to poaching for other activities.
- **Fix the BRI Expenditure**. Fix the expenditure of $3.1 million of SRO per year to BRI, i.e., get this beast paid for. Ideally, this problem would be solved without SRO money, but with money obtained from sources that were envisioned when the BRI was first conceived, e.g., NBAF. Turn the BRI into a positive learning experience, and use it as a means to demonstrate the currently stated commitment to openness and transparency. Explain the decisions made, the risks taken, and the results obtained. Develop a "business plan" for the BRI that indicates the funding targets to resolve the current operating deficit. Develop a time line through which the financial dependence of the BRI is projected to decrease to a constant value. Define circumstances under which closing the facility would be considered, i.e., under what conditions would it be a "failure." Use this process as another lesson for the need for transparency and inclusiveness in all major decisions.
- **Don't allow Olathe to be "déjà vu all over again"**. Establish an Olathe Review Board (ORB) composed of faculty representing all aspects of the K-State mission (research, teaching and extension). Task this board with reviewing the business plans developed for the Olathe campus. Take direction from the group as to which activities are likely to result in a net positive for the entire K-State enterprise and which are not. Carefully assess the ramifications of the activities proposed for the Olathe campus. If, in the end, the Olathe leadership team can not convince the ORB of the potential value of some or all of the activities proposed, we strongly encourage a course reversal on this plan and to renew the focus on strengthening K-State by minimizing activities which dilute our impact.

8.2 Seed Money for RSCA

8.2.1 Findings

Seed money is an opportunity for the University to invest in its faculty to create wealth in the form of more money and the output of the RSCA enterprise. Three seed programs currently exist:

- **University Small Research Grant/Faculty Development Awards (USRG/FDA).** The USRG/FDA programs are targeted to "lift all boats" regardless of the perceived national/international competitiveness of the applicant. The USRG/FDA are chronically underfunded. There are always more viable requests than can be funded, and competition is now high enough that it is discouraging some submissions.
- **Targeted Excellence (TE)**. TE funds were provided from tuition monies with the goal of increasing the visibility of programs that could be, are, or are very nearly, nationally or internationally recognized for research excellence. A second purpose of TE was to stimulate interdisciplinary collaborations. The TE program drew divided positions as to its continuance.

  Positive aspects of the TE program included:
    - It increased interdisciplinary research.
    - Novel extramural proposals were funded.

- K-state received a GAANN and its first IGERT.
- Multi-investigator equipment was obtained which led to additional funding for entities such as the Lipidomics Center and the Integrated Genetics Facility.

Concerns expressed about the TE program included:

- The appearance that political considerations, rather than merit, formed the basis for funding.
- Some of the programs funded should have been part of the base function of the institution and not funded by this program.
- Faculty in the humanities and fine arts felt that their proposals were not given full consideration.
- Tuition money could have been better used for faculty salaries.
- Some projects were not clearly sustainable once the TE funding ended.

8.2.2 Recommendations

- **USRG/FDA should be continued and supported well**. Priority should be given to new faculty and faculty who are new to the extramural RSCA enterprise.
- **A Targeted Excellence-type program should be considered with care.** The concept of seeding major, interdisciplinary projects is good for the RSCA enterprise. A Targeted Excellence-type program should be continued. However, the funding decisions must be transparent. A significant fraction of the SRO generated by projects funded by this program should be returned to the project ("targeted SRO") to augment the original investment, especially during the first several years of the project. Projects, once funded, should not be left unattended by the University. The name of the program should be changed.
- **Develop a mechanism to help "seed" projects obtain extramural support.** This process could be administered by the VP for Research. Help would include finding extramural sources of funding, writing proposals, and perhaps coordinating lobbying efforts for support.

8.3 The University Budget

8.3.1 Findings

- **Relative increases in University program budgets.** Since 2000 the overall University budget has increased at an annual rate of 4.5% for a total increase of 55%. However, over this same period, the intramural research budget has increased at an annual rate of only 1.5% for a total change of only 15%. As seen in Figure 3, support for all areas of the University budget except those for intramural research and public service have increased by at least 50% in the last 10 years. If the University's Intramural Research Program had increased at a rate similar to that of the Instructional Program, then ~$15 million additional dollars would be available for the RSCA enterprise. Currently, the Intramural Research Program is heavily dependent[19] on the Kansas Agricultural Experiment Station (KAES) for its funding.[20] The direct dependence of KAES on the State legislature for funding suggests that the recent pattern of budget reductions is to be expected in the future.[21]

[19] 85-90% of the Intramural Research Program budget comes from KAES

[20] KAES supports research activities in five colleges.

[21] Intramural research has decreased in four of the past ten years, even when other portions of the budget have increased.

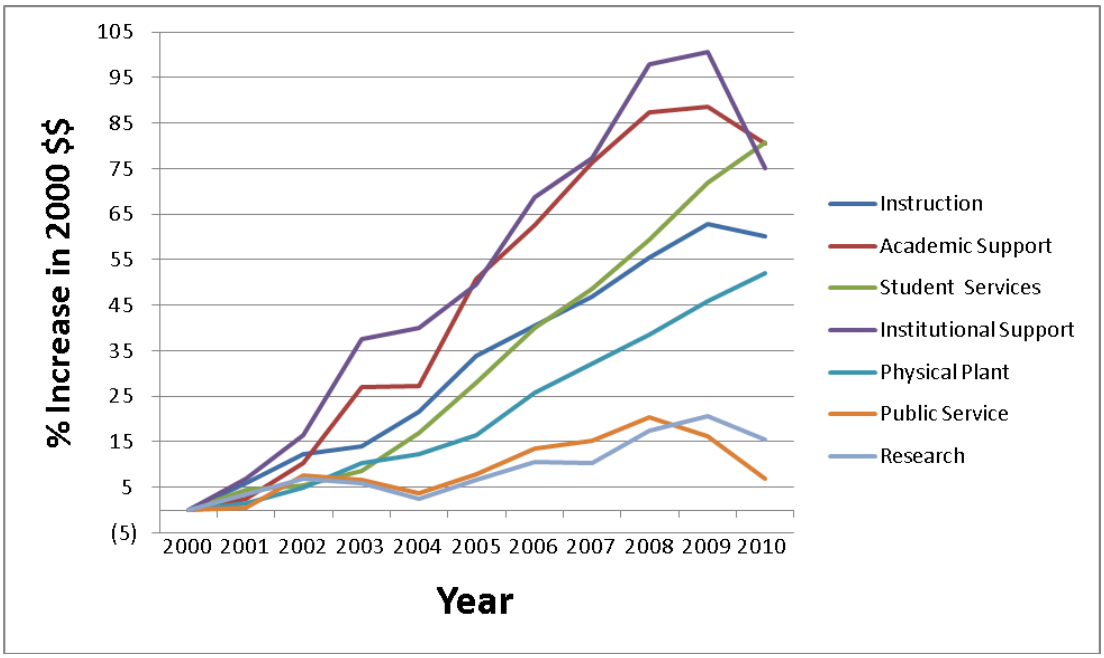

Figure 3. Percent change in the K-State University Budget for the period FY00 – FY10, for various categories of the K-State budget[22].

- **State budget reductions differentially impact intramural research.** This peculiar result occurs as a result of the use of tuition funds to fund major portions of the University's operations. Over the last 10 years, the proportion of the University's general use budget derived from tuition has gone from ~30% to ~60%, with the remaining funds supplied by the State's general fund. The KAES is on a separate budget line and has benefited from tuition funds only once in the past 10 years (in 2010, the current year). Therefore, a 10% reduction in State general funds reduces the KAES budget by the full 10%, but since the general use budget is only 40% State funds, the same 10% reduction in State funds results in only a 4% overall budget reduction.
- **The University's budget does not reflect a commitment to RSCA activities.** The data in Figure 3 are not consistent with an administration for which success in the RSCA enterprise is a high priority. Reductions of the sort incurred over the last decade shrink the areas funded and render unsustainable the inter-disciplinary collaborations and services that such support provides. The results of last year's across-the-board budget reductions were the exact opposite of those needed to encourage success in RSCA as they severely and differentially impacted funding available for the RSCA enterprise.
- **Unintended consequences of recent budget choices.** Decisions on budgets and other policy matters appear to be made without regard for their impact on the RSCA enterprise. For example,
  - Across-the-board reductions to State funding results in the budgets for intramural research efforts being cut at more than twice the rate of most other activities.

[22] See www.k-state.edu/budget/facts.htm.

- New revenue-sharing policies[23] which go into effect in FY11 will result in funds being provided to departments on the basis of the amount of teaching that they do.
- There is no suggestion that these decisions are intended to harm the RSCA enterprise, even though they do. Rather, it is the apparent lack of consideration of the consequences to the RSCA enterprise that is disheartening. The current beleaguered status of the RSCA enterprise did not arise overnight and will not be corrected overnight, but without significant changes in policy, planning, and attitude there is no reason to expect any significant improvements to occur.

8.3.2 Recommendation

- **The University needs to reconsider the allocation and source(s) of funding for its Intramural Research Program**.
  - Identify a target funding level for the Intramural Research Program.
  - Define the programmatic goals of the University's Intramural Research Program.
  - Decisions on funding for the Intramural Research Program should be made intentionally. For example, if RSCA is a University priority, and it should be, then this budget should not be cut to avoid cuts to other programs and should be increased in a manner that is at least commensurate with that of other University programs. Colloquially speaking, the University must put its money where its mouth is.
  - Identify substantive sources of funds other than KAES to support the Intramural Research Program. If at all possible, these funds should not be dependent solely on state General funds, since these funds have increased only minimally over the past decade, a trend that is expected to continue.

8.4 The Overall Budget

The majority of the recommendations to improve the RSCA enterprise made in this report will require significant budgets and/or skilled personnel for implementation. Many of the challenges facing the K-State research community clearly result from the systematic under funding of past efforts. The FY11 budget is not as dire as it might have been, but neither does it contain the funds necessary to implement most of the recommendations in this report while simultaneously supporting existing programs. The K-State 2025 initiative will lead to a strategic vision for the University that articulates the University's priorities for the next 15 years. If the RSCA enterprise is amongst the priorities listed, then additional funding will be required to ensure success. Reallocation of SRO and foundation funds may be a part of this solution, but will not suffice. Rather, new financial resources must be allocated for the RSCA enterprise. Doing so will speak more loudly than mere words regarding the true value of the RSCA enterprise to our University.

[23] Funds generated from credit-hour based fees paid by students are to be returned to the department in which the courses were taught.

Appendix 1
Table A-1

Table A-1: FY07 Research Expenditures of Big 12 and Land Grant Universities, ranked largest to smallest.

Rank		Land Grant?	Big 12?	Total Research Expenditures FY02	Total Research Expenditures FY07	% change 02 - 07
1	Wisconsin	Land Grant		662.1	840.7	27%
2	Ohio State	Land Grant		432.3	720.2	67%
3	Penn State	Land Grant		492.7	652.1	32%
4	Cornell	Land Grant		496.1	641.9	29%
5	Minnesota	Land Grant		494.2	624.1	26%
6	MIT	Land Grant		455.5	614.4	35%
7	California, Davis	Land Grant		456.6	600.5	32%
8	Florida	Land Grant		386.3	592.8	53%
9	California, Berkeley	Land Grant		474.8	552.4	16%
10	Texas A&M	Land Grant	Big 12	436.6	543.9	25%
11	Arizona	Land Grant		390.8	531.7	36%
12	Colorado, all campuses		Big 12	399.0	527.6	32%
13	Illinois - UC	Land Grant		427.1	473.9	11%
14	Texas , Austin		Big 12	321.0	446.8	39%
15	Baylor		Big 12	415.0	442.0	7%
16	Purdue	Land Grant		285.7	415.2	45%
17	LSU	Land Grant		287.4	372.4	30%
18	Virginia Polytechnic Institute and State	Land Grant		232.6	367.0	58%
19	Michigan State	Land Grant		289.8	360.9	25%
20	Maryland, College Park	Land Grant		325.0	359.8	11%
21	Nebraska	Land Grant	Big 12	248.0	336.5	36%
22	Georgia	Land Grant		284.7	332.6	17%
23	NC State	Land Grant		290.0	331.7	14%
24	Kentucky	Land Grant		236.3	331.6	40%
25	Rutgers	Land Grant		258.8	311.6	20%
26	Colorado State	Land Grant		178.8	288.5	61%
27	Hawaii	Land Grant		172.7	266.5	54%
28	Tennessee	Land Grant		188.2	243.2	29%
29	Missouri-Columbia	Land Grant	Big 12	177.0	228.7	29%
30	Connecticut	Land Grant		172.0	224.6	31%
31	Iowa State	Land Grant	Big 12	188.7	217.2	15%
32	Clemson	Land Grant		134.8	211.8	57%
33	Washington State University	Land Grant		146.9	210.0	43%
34	Mississippi State	Land Grant		158.7	206.2	30%
35	Kansas		Big 12	172.1	202.1	17%
36	Oregon State	Land Grant		161.7	189.4	17%
37	Oklahoma		Big 12	169.4	176.8	4%
38	Alaska	Land Grant		116.3	151.8	31%
39	New Mexico State	Land Grant		103.1	148.1	44%
40	Massachusetts, Amherst	Land Grant		109.3	141.4	29%
41	Auburn	Land Grant		108.7	140.6	29%
42	Utah State	Land Grant		121.6	138.1	14%
43	West Virginia	Land Grant		85.0	133.6	57%
44	California, Riverside	Land Grant		111.9	128.2	15%
45	Kansas State	Land Grant	Big 12	106.8	123.9	16%
46	Delaware	Land Grant		85.2	118.2	39%
47	Montana State	Land Grant		78.2	117.0	50%
48	New Hampshire	Land Grant		93.2	114.3	23%
49	Vermont	Land Grant		90.2	113.2	25%
50	North Dakota State	Land Grant		72.1	106.2	47%
51	Oklahoma State	Land Grant	Big 12	95.0	101.1	6%
52	Arkansas	Land Grant		83.0	101.1	22%
53	Maine	Land Grant		62.2	96.1	55%
54	Nevada, Reno	Land Grant		66.7	95.8	44%
55	Idaho	Land Grant		76.6	83.4	9%
56	Wyoming	Land Grant		41.6	79.7	92%
57	Rhode Island	Land Grant		53.3	76.2	43%
58	Texas Tech		Big 12	82.8	57.9	-30%
59	South Dakota State	Land Grant		20.0	39.0	95%

Sourec of data: NSF publications: NSF 09-303 NSF 04-330
Academic R&D Expenditures http://www.nsf.gov/statistics/rdexpenditures/

Table A-2: Growth in Research Expenditures from FY02 – FY07 among Big 12 and Land Grant Universities, ranked greatest to smallest.

Rank		Land Grant?	Big 12?	Total Research Expenditures FY02	Total Research Expenditures FY07	% change 02 - 07
1	South Dakota State	Land Grant		20.0	39.0	95%
2	Wyoming	Land Grant		41.6	79.7	92%
3	Ohio State	Land Grant		432.3	720.2	67%
4	Colorado State	Land Grant		178.8	288.5	61%
5	Virginia Polytechnic Institute and State	Land Grant		232.6	367.0	58%
6	West Virginia	Land Grant		85.0	133.6	57%
7	Clemson	Land Grant		134.8	211.8	57%
8	Maine	Land Grant		62.2	96.1	55%
9	Hawaii	Land Grant		172.7	266.5	54%
10	Florida	Land Grant		386.3	592.8	53%
11	Montana State	Land Grant		78.2	117.0	50%
12	North Dakota State	Land Grant		72.1	106.2	47%
13	Purdue	Land Grant		285.7	415.2	45%
14	New Mexico State	Land Grant		103.1	148.1	44%
15	Nevada, Reno	Land Grant		66.7	95.8	44%
16	Rhode Island	Land Grant		53.3	76.2	43%
17	Washington State University	Land Grant		146.9	210.0	43%
18	Kentucky	Land Grant		236.3	331.6	40%
19	Texas , Austin		Big 12	321.0	446.8	39%
20	Delaware	Land Grant		85.2	118.2	39%
21	Arizona	Land Grant		390.8	531.7	36%
22	Nebraska	Land Grant	Big 12	248.0	336.5	36%
23	MIT	Land Grant		455.5	614.4	35%
24	Penn State	Land Grant		492.7	652.1	32%
25	Colorado, all campuses		Big 12	399.0	527.6	32%
26	California, Davis	Land Grant		456.6	600.5	32%
27	Connecticut	Land Grant		172.0	224.6	31%
28	Alaska	Land Grant		116.3	151.8	31%
29	Mississippi State	Land Grant		158.7	206.2	30%
30	LSU	Land Grant		287.4	372.4	30%
31	Cornell	Land Grant		496.1	641.9	29%
32	Massachusetts, Amherst	Land Grant		109.3	141.4	29%
33	Auburn	Land Grant		108.7	140.6	29%
34	Tennessee	Land Grant		188.2	243.2	29%
35	Missouri-Columbia	Land Grant	Big 12	177.0	228.7	29%
36	Wisconsin	Land Grant		662.1	840.7	27%
37	Minnesota	Land Grant		494.2	624.1	26%
38	Vermont	Land Grant		90.2	113.2	25%
39	Texas A&M	Land Grant	Big 12	436.6	543.9	25%
40	Michigan State	Land Grant		289.8	360.9	25%
41	New Hampshire	Land Grant		93.2	114.3	23%
42	Arkansas	Land Grant		83.0	101.1	22%
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48	Kansas State	Land Grant	Big 12	106.8	123.9	16%
49	Iowa State	Land Grant	Big 12	188.7	217.2	15%
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51	NC State	Land Grant		290.0	331.7	14%
52	Utah State	Land Grant		121.6	138.1	14%
53	Illinois - UC	Land Grant		427.1	473.9	11%
54	Maryland, College Park	Land Grant		325.0	359.8	11%
55	Idaho	Land Grant		76.6	83.4	9%
56	Baylor		Big 12	415.0	442.0	7%
57	Oklahoma State	Land Grant	Big 12	95.0	101.1	6%
58	Oklahoma		Big 12	169.4	176.8	4%
59	Texas Tech		Big 12	82.8	57.9	-30%

Sourec of data: NSF publications: NSF 09-303 NSF 04-330
Academic R&D Expenditures http://www.nsf.gov/statistics/rdexpenditures/

Appendix 2
K-State Research Award Distribution

Research awards received during the period July 1, 2009 - March 31, 2010. The precise order of the units receiving funds varies from year to year and this list represents only the period reported.

Units with Research Awards totaling $2,000,000 or more

Family Studies	$	14,677,443	1
Budget Office	$	11,748,086	2
Biology	$	6,225,129	3
Diagnostic Medicine	$	6,025,665	4
Dean of Education	$	4,333,180	5
Physics	$	4,023,900	6
Agronomy	$	4,019,174	7
Plant Pathology	$	3,880,032	8
Human Nutrition	$	3,162,679	9
Anatomy & Physiology	$	2,883,743	10
Computer Science	$	2,883,390	11
Chemistry	$	2,867,726	12
Ks Forest Service	$	2,694,085	13
Chemical Engineeering	$	2,415,610	14
Civil Engineering	$	2,233,518	15
National Ag Bioscecurity Ctr	$	2,163,598	16
Office of President	$	2,100,000	17

Units with Research Awards totaling $1,000,000 or more

Family Studies	$	14,677,443	1
Budget Office	$	11,748,086	2
Biology	$	6,225,129	3
Diagnostic Medicine	$	6,025,665	4
Dean of Education	$	4,333,180	5
Physics	$	4,023,900	6
Agronomy	$	4,019,174	7
Plant Pathology	$	3,880,032	8
Human Nutrition	$	3,162,679	9
Anatomy & Physiology	$	2,883,743	10
Computer Science	$	2,883,390	11
Chemistry	$	2,867,726	12
Ks Forest Service	$	2,694,085	13
Chemical Engineering	$	2,415,610	14
Civil Engineering	$	2,233,518	15
National Ag Bioscecurity Ctr	$	2,163,598	16
Office of President	$	2,100,000	17
Bio & Ag Eng	$	1,985,593	18
Education & Personal Dvlt	$	1,876,934	19
Electrical Engineering	$	1,685,995	20
Mechanical Engineering	$	1,641,917	21
Ag econ	$	1,594,544	22
Advanced Manufacturing Inst.	$	1,581,700	23
Biochemistry	$	1,519,816	24
Clinical Sciences	$	1,496,987	25
Engineering Extension	$	1,134,545	26
Dean of Human Ecology	$	1,042,659	27
Center for Hazardous Sub.	$	1,022,000	28

Research Awards for the top N Units			% of funds to these Units	% of units in this group
1-10 total	$	60,979,031	56%	7%
1-17 total	$	78,336,958	72%	12%
1-20 total	$	83,885,480	78%	15%
1-28 total	$	94,919,648	88%	20%
1-88 total	$	108,165,666	100%	64%
1-137 total (all KSU awards)	$	108,165,666	100%	100%

Appendix 3: The Faculty Survey

Research Infrastructure Survey

March 8-12, 2010

Statistics

A total of 559 people started this survey.
410 people completed it.
149 people quit before completing it.

Frequencies for scale questions 5, 6, 18, 20, 22, 24, 25, and 27

Notes		
Output Created		06-APR-2010 14:35:38
Comments		
Input	**Data**	C:\Documents and Settings\Dana\My Documents\Data\infra.sav
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	559
Missing Value Handling	**Definition of Missing**	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.
Syntax		FREQUENCIES VARIABLES=office2 lab2 studio2 green2 storag2 animal2 meets2 meetm2 meetl2 collab2 plumb2 elect2 gener2 hvac2 fume2 temp2 roof2 plots2 machine2 pest2 window2 mold2 comphw2 compsw2 suprcom2 bandwid2 hardwir2 wireles2 telecon2 servrhw2 servrsw2 graph2 itsupp2 journal2 monogr2 refer2 ill2 libstaf2 dataset2 collinf2 pasd2 pasc2 pasad2 postd2 postc2 postad2 extdep2 extorsp2 gta22 gra22 ga22 ura22 labtch22 postdc22 gta23 gra23 ga23 ura23 labtch23 postdc23 recruit2 /ORDER= ANALYSIS .
Resources	**Total Values Allowed**	149796
	Elapsed Time	0:00:00.06

Q1: Please select your college/unit.

Agriculture	98 (17.53%)
Architecture, Planning, and Design	19 (3.4%)
Arts and Sciences	229 (40.97%)
Business Administration	18 (3.22%)
Education	34 (6.08%)
Engineering	51 (9.12%)
Human Ecology	33 (5.9%)
K-State Libraries	16 (2.86%)
K-State Research and Extension	16 (2.86%)
Technology and Aviation	13 (2.33%)
Veterinary Medicine	32 (5.72%)

Q2: Please select your discipline.

Physical Science	62 (11.09%)
Life Science	127 (22.72%)
Applied Sciences / Engineering	81 (14.49%)
Architecture	11 (1.97%)
Business	25 (4.47%)
Education	46 (8.23%)
Social Science	88 (15.74%)
Humanities	50 (8.94%)
Arts	24 (4.29%)
Other	74 (13.24%)

Q3: Please select your rank

Professor	175 (31.31%)
Associate Professor	115 (20.57%)
Assistant Professor	109 (19.5%)
Instructor	28 (5.01%)
Adjunct Faculty	18 (3.22%)
Other	114 (20.39%)

Q4: Please indicate the type of administrative appointment you hold.

No administrative appointment.	368 (65.83%)
Full-time administrative appointment	111 (19.86%)
Part-time administrative appointment	58 (10.38%)
Director of a K-State Core Facility	12 (2.15%)
N/R	10 (1.79%)

Physical Space

Q5: Please describe the quality of the following spaces used for your research, scholarship, and creative activity

Q5.1: Personal office space					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	7	1.3	1.4	1.4
	Seriously or somewhat deficient	150	26.8	31.1	32.5
	Adequate	187	33.5	38.7	71.2
	More than adequate or superior	139	24.9	28.8	100.0
	Total	483	86.4	100.0	
Missing	System	76	13.6		
Total		559	100.0		

Q5.2: Laboratory space					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	216	38.6	45.4	45.4
	Seriously or somewhat deficient	142	25.4	29.8	75.2
	Adequate	89	15.9	18.7	93.9
	More than adequate or superior	29	5.2	6.1	100.0
	Total	476	85.2	100.0	
Missing	System	83	14.8		
Total		559	100.0		

Q5.3: Studio space					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	417	74.6	89.3	89.3
	Seriously or somewhat deficient	28	5.0	6.0	95.3
	Adequate	13	2.3	2.8	98.1
	More than adequate or superior	9	1.6	1.9	100.0
	Total	467	83.5	100.0	
Missing	System	92	16.5		
Total		559	100.0		

Q5.4: Greenhouse space					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	419	75.0	89.5	89.5
	Seriously or somewhat deficient	24	4.3	5.1	94.7
	Adequate	15	2.7	3.2	97.9
	More than adequate or superior	10	1.8	2.1	100.0
	Total	468	83.7	100.0	
Missing	System	91	16.3		
Total		559	100.0		

Q5.5: Storage for Research Collections					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	248	44.4	52.8	52.8
	Seriously or somewhat deficient	147	26.3	31.3	84.0
	Adequate	59	10.6	12.6	96.6
	More than adequate or superior	16	2.9	3.4	100.0
	Total	470	84.1	100.0	
Missing	System	89	15.9		
Total		559	100.0		

Q5.6: Animal rooms					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	403	72.1	86.1	86.1
	Seriously or somewhat deficient	39	7.0	8.3	94.4
	Adequate	20	3.6	4.3	98.7
	More than adequate or superior	6	1.1	1.3	100.0
	Total	468	83.7	100.0	
Missing	System	91	16.3		
Total		559	100.0		

Q5.7: Meeting space (small, 4-6)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	28	5.0	5.9	5.9
	Seriously or somewhat deficient	171	30.6	35.8	41.6
	Adequate	189	33.8	39.5	81.2
	More than adequate or superior	90	16.1	18.8	100.0
	Total	478	85.5	100.0	
Missing	System	81	14.5		
Total		559	100.0		

Q5.8: Meeting space (medium, 7-20)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	38	6.8	8.0	8.0
	Seriously or somewhat deficient	169	30.2	35.6	43.6
	Adequate	193	34.5	40.6	84.2
	More than adequate or superior	75	13.4	15.8	100.0
	Total	475	85.0	100.0	
Missing	System	84	15.0		
Total		559	100.0		

Q5.9: Meeting space (large, 21+)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	65	11.6	13.7	13.7
	Seriously or somewhat deficient	205	36.7	43.1	56.7
	Adequate	144	25.8	30.3	87.0
	More than adequate or superior	62	11.1	13.0	100.0
	Total	476	85.2	100.0	
Missing	System	83	14.8		
Total		559	100.0		

Q5.10: Space for collaborative interaction between faculty					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	37	6.6	7.7	7.7
	Seriously or somewhat deficient	224	40.1	46.8	54.5
	Adequate	169	30.2	35.3	89.8
	More than adequate or superior	49	8.8	10.2	100.0
	Total	479	85.7	100.0	
Missing	System	80	14.3		
Total		559	100.0		

Q6: Please describe the current status (functionality, maintenance) of the following types of building infrastructure for the space in which you perform most of your research, scholarship, and creative activity

Q6.1: Plumbing					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	41	7.3	8.6	8.6
	Seriously or somewhat deficient	221	39.5	46.1	54.7
	Adequate	176	31.5	36.7	91.4
	More than adequate or superior	41	7.3	8.6	100.0
	Total	479	85.7	100.0	
Missing	System	80	14.3		
Total		559	100.0		

Q6.2: Electrical supply					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	23	4.1	4.8	4.8
	Seriously or somewhat deficient	185	33.1	38.7	43.5
	Adequate	206	36.9	43.1	86.6
	More than adequate or superior	64	11.4	13.4	100.0
	Total	478	85.5	100.0	
Missing	System	81	14.5		
Total		559	100.0		

Q6.3: Back-up power generators					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	149	26.7	31.4	31.4
	Seriously or somewhat deficient	201	36.0	42.3	73.7
	Adequate	92	16.5	19.4	93.1
	More than adequate or superior	33	5.9	6.9	100.0
	Total	475	85.0	100.0	
Missing	System	84	15.0		
Total		559	100.0		

Q6.4: Heating, Ventilation, and Air-Conditioning (HVAC)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	23	4.1	4.8	4.8
	Seriously or somewhat deficient	316	56.5	66.1	70.9
	Adequate	115	20.6	24.1	95.0
	More than adequate or superior	24	4.3	5.0	100.0
	Total	478	85.5	100.0	
Missing	System	81	14.5		
Total		559	100.0		

Q6.5: Fume hoods					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	257	46.0	54.3	54.3
	Seriously or somewhat deficient	118	21.1	24.9	79.3
	Adequate	79	14.1	16.7	96.0
	More than adequate or superior	19	3.4	4.0	100.0
	Total	473	84.6	100.0	
Missing	System	86	15.4		
Total		559	100.0		

Q6.6: Temperature and climate control					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	32	5.7	6.7	6.7
	Seriously or somewhat deficient	311	55.6	64.9	71.6
	Adequate	115	20.6	24.0	95.6
	More than adequate or superior	21	3.8	4.4	100.0
	Total	479	85.7	100.0	
Missing	System	80	14.3		
Total		559	100.0		

Q6.7: Roof					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	98	17.5	20.8	20.8
	Seriously or somewhat deficient	129	23.1	27.3	48.1
	Adequate	189	33.8	40.0	88.1
	More than adequate or superior	56	10.0	11.9	100.0
	Total	472	84.4	100.0	
Missing	System	87	15.6		
Total		559	100.0		

Q6.8: Field plots					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	418	74.8	88.6	88.6
	Seriously or somewhat deficient	15	2.7	3.2	91.7
	Adequate	19	3.4	4.0	95.8
	More than adequate or superior	20	3.6	4.2	100.0
	Total	472	84.4	100.0	
Missing	System	87	15.6		
Total		559	100.0		

Q6.9: Field machinery					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	416	74.4	87.9	87.9
	Seriously or somewhat deficient	20	3.6	4.2	92.2
	Adequate	26	4.7	5.5	97.7
	More than adequate or superior	11	2.0	2.3	100.0
	Total	473	84.6	100.0	
Missing	System	86	15.4		
Total		559	100.0		

Q6.10: Pest control					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	199	35.6	41.9	41.9
	Seriously or somewhat deficient	120	21.5	25.3	67.2
	Adequate	129	23.1	27.2	94.3
	More than adequate or superior	27	4.8	5.7	100.0
	Total	475	85.0	100.0	
Missing	System	84	15.0		
Total		559	100.0		

Q6.11: Window blinds / shades					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	90	16.1	18.9	18.9
	Seriously or somewhat deficient	150	26.8	31.6	50.5
	Adequate	189	33.8	39.8	90.3
	More than adequate or superior	46	8.2	9.7	100.0
	Total	475	85.0	100.0	
Missing	System	84	15.0		
Total		559	100.0		

Q6.12: Containment of mold or other allergens					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	108	19.3	22.9	22.9
	Seriously or somewhat deficient	194	34.7	41.2	64.1
	Adequate	148	26.5	31.4	95.5
	More than adequate or superior	21	3.8	4.5	100.0
	Total	471	84.3	100.0	
Missing	System	88	15.7		
Total		559	100.0		

Q7: Overall, to what extent do deficiencies in building infrastructure impact your research, scholarship, and creative activity?

No impact	61 (10.91%)
Slight impact	152 (27.19%)
Moderate impact	135 (24.15%)
Regular impact	91 (16.28%)
Serious and frequent impact	40 (7.16%)
N/R	80 (14.31%)

Q8: How important is quality space for research, scholarship, and creative activity to the recruitment and retention of faculty in your department or unit?

Not important	12 (2.15%)
Slightly important	46 (8.23%)
Somewhat important	81 (14.49%)
Important	157 (28.09%)
Very important	183 (32.74%)
N/R	80 (14.31%)

Q9: Some suggest that KSU research, scholarship, and creative activity would benefit from new research buildings and/or major building renovation with goals of fostering interdisciplinary and collaborative programs and replacing/updating inadequate infrastructure.

Please indicate your level of agreement to the following statements:

9.1 Interdepartmental spaces are important to fostering interdisciplinary and collaborative research programs.

Not applicable	17 (3.04%)
Strongly disagree	16 (2.86%)
Disagree	48 (8.59%)
Neutral	105 (18.78%)
Agree	194 (34.7%)
Strongly agree	100 (17.89%)
N/R	79 (14.13%)

9.2 Research buildings with a mix of individual laboratories and common laboratory research space would promote interdepartmental, collaborative research.

Not applicable	81 (14.49%)
Strongly disagree	8 (1.43%)
Disagree	42 (7.51%)
Neutral	113 (20.21%)
Agree	171 (30.59%)
Strongly agree	62 (11.09%)
N/R	82 (14.67%)

9.3 Co-location of researchers, laboratories, equipment, and services based on thematic areas (not necessarily departmental areas) would promote significant economy of operation and enhance K-State's collaborative research.

Not applicable	59 (10.55%)
Strongly disagree	23 (4.11%)
Disagree	43 (7.69%)
Neutral	129 (23.08%)
Agree	151 (27.01%)
Strongly agree	69 (12.34%)

Q10: What types of new physical space do you need to increase your research, scholarship, and creative activity?

Summary of comments:

- Renovate existing space
- Need increased space for labs (especially BL-2) and studios
- Utility Concerns
    - Power Outages
    - Temperature Control
- Lack of Office Space
    - Faculty
    - GTA/GRA
    - Post Docs
    - Visiting Professors
- Lack of Meeting Space
    - Collaboration
        - Inter/Intra Departmental

Equipment

Q11: Please describe the current status (functionality, maintenance) of your equipment for your research, scholarship, and creative activity on the following scale, where 1 equals "seriously deficient" and 5 equals "superior."

1) Seriously deficient	47 (8.41%)
(2) Somewhat deficient	140 (25.04%)
(3) Adequate	195 (34.88%)
(4) More than adequate	47 (8.41%)
(5) Superior	8 (1.43%)
N/R	122 (21.82%)

Q12: Please describe below the equipment you need to raise the level of excellence in research, scholarship, and creative activity.

Summary of comments:

- Fee-based shops unsustainable
    - Require support at university level
        - Technician Salaries
        - Equipment Maintenance
- Microscopy (TEM, SEM, optical, confocal)
- Biotech equipment. (for gene sequencing, genomics, proteonomics, lipidomics, ultracentrifuge)
- Materials Characterization (NMR, solid state NMR, XPS, GC, MS, elemental analysis, stable isotope analysis, Raman, micro-Raman, light scattering, wide and small angle X-ray, rheology)
- High performance computing (e.g., Beocat, statistical packages)
- Greenhouses
- Fabrication equipment (CNC, mills, lithography, laser etching, rapid prototyping equipment)
- High performance electronic equipment for EDL.
- Large format printing.
- GIS

Q13: A "shared facility" is a Core or Center that provides services to a broad spectrum of users. There is typically a charge for the service rendered. Most Cores are directed by a faculty member with expertise in the core facility who can assist with experimental strategies; many also have technical managers to provide instrument training and/or to run experimental procedures.

Please indicate the degree to which you agree with the following statements.

13.1 The availability of facility managers/technical assistants to run instruments and/or analyze results would benefit my research, scholarship, and creative activity.

Not applicable	145 (25.94%)
Strongly disagree	14 (2.5%)
Disagree	17 (3.04%)
Neutral	69 (12.34%)
Agree	103 (18.43%)
Strongly agree	86 (15.38%)
N/R	125 (22.36%)

13.2 Training graduate students and postdocs to use the equipment in core facilities would benefit my research, scholarship, and creative activity

Not applicable	151 (27.01%)
Strongly disagree	15 (2.68%)
Disagree	13 (2.33%)
Neutral	62 (11.09%)
Agree	111 (19.86%)
Strongly agree	81 (14.49%)
N/R	126 (22.54%)

13.3 Machine shops would be better if they were consolidated into one area and their resources combined and shared.

Not applicable	186 (33.27%)
Strongly disagree	17 (3.04%)
Disagree	22 (3.94%)
Neutral	105 (18.78%)
Agree	65 (11.63%)
Strongly agree	34 (6.08%)
N/R	130 (23.26%)

13.4 Some central administrative oversight/management would facilitate efficient functioning of core facilities.

Not applicable	140 (25.04%)
Strongly disagree	25 (4.47%)
Disagree	36 (6.44%)
Neutral	115 (20.57%)
Agree	80 (14.31%)
Strongly agree	31 (5.55%)
N/R	132 (23.61%)

Q14: Please list below existing equipment that you think would benefit from being consolidated into one area as a combined and shared resource.
See summary comments for Q12 for general overview of concerns.

Q15: Please list below procedures/equipment/expertise <u>not available</u> on the KSU campus that you currently outsource to commercial services or other universities.
See summary comments for Q12 for general overview of concerns.

Q16: Please list below procedures/equipment/expertise <u>available</u> on the KSU campus <u>but not meeting your needs</u>, and so therefore outsourced to commercial services or other universities. (Please explain your basis to outsource, e.g., cost, turn around time, quality, etc.)
See summary comments for Q12 for general overview of concerns.

Q17: What new KSU <u>core facilities and resources</u> do you need to raise the level of excellence in research, scholarship, and creative activity? Please list and explain briefly

See summary comments for Q12 for general overview of concerns.

Information Technology (IT)

Q18: Please describe the quality of the following information technology (IT) resources available for your research, scholarship, and creative activity.

Q18.1: Personal computing hardware

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	4	.7	.9	.9
	Seriously or somewhat deficient	118	21.1	28.0	28.9
	Adequate	183	32.7	43.4	72.3
	More than adequate or superior	117	20.9	27.7	100.0
	Total	422	75.5	100.0	
Missing	System	137	24.5		
Total		559	100.0		

Q18.2: Personal computing software

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	3	.5	.7	.7
	Seriously or somewhat deficient	145	25.9	34.5	35.2
	Adequate	175	31.3	41.7	76.9
	More than adequate or superior	97	17.4	23.1	100.0
	Total	420	75.1	100.0	
Missing	System	139	24.9		
Total		559	100.0		

Q18.3: Supercomputer					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	332	59.4	79.2	79.2
	Seriously or somewhat deficient	59	10.6	14.1	93.3
	Adequate	22	3.9	5.3	98.6
	More than adequate or superior	6	1.1	1.4	100.0
	Total	419	75.0	100.0	
Missing	System	140	25.0		
Total		559	100.0		

Q18.4: Internet speed and band width					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	10	1.8	2.4	2.4
	Seriously or somewhat deficient	134	24.0	31.8	34.1
	Adequate	200	35.8	47.4	81.5
	More than adequate or superior	78	14.0	18.5	100.0
	Total	422	75.5	100.0	
Missing	System	137	24.5		
Total		559	100.0		

Q18.5: Hardwire internet connections					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	38	6.8	9.0	9.0
	Seriously or somewhat deficient	106	19.0	25.2	34.3
	Adequate	201	36.0	47.9	82.1
	More than adequate or superior	75	13.4	17.9	100.0
	Total	420	75.1	100.0	
Missing	System	139	24.9		
Total		559	100.0		

Q18.6: Wireless connections					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	22	3.9	5.2	5.2
	Seriously or somewhat deficient	154	27.5	36.5	41.7
	Adequate	173	30.9	41.0	82.7
	More than adequate or superior	73	13.1	17.3	100.0
	Total	422	75.5	100.0	
Missing	System	137	24.5		
Total		559	100.0		

Q18.7: Teleconferencing services					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	87	15.6	20.6	20.6
	Seriously or somewhat deficient	149	26.7	35.2	55.8
	Adequate	134	24.0	31.7	87.5
	More than adequate or superior	53	9.5	12.5	100.0
	Total	423	75.7	100.0	
Missing	System	136	24.3		
Total		559	100.0		

Q18.8: Server hardware					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	122	21.8	29.2	29.2
	Seriously or somewhat deficient	91	16.3	21.8	51.0
	Adequate	163	29.2	39.0	90.0
	More than adequate or superior	42	7.5	10.0	100.0
	Total	418	74.8	100.0	
Missing	System	141	25.2		
Total		559	100.0		

Q18.9: Server software					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	128	22.9	30.9	30.9
	Seriously or somewhat deficient	86	15.4	20.8	51.7
	Adequate	164	29.3	39.6	91.3
	More than adequate or superior	36	6.4	8.7	100.0
	Total	414	74.1	100.0	
Missing	System	145	25.9		
Total		559	100.0		

Q18.10: Graphics rendering / imaging					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	127	22.7	30.4	30.4
	Seriously or somewhat deficient	131	23.4	31.3	61.7
	Adequate	126	22.5	30.1	91.9
	More than adequate or superior	34	6.1	8.1	100.0
	Total	418	74.8	100.0	
Missing	System	141	25.2		
Total		559	100.0		

Q18.11: IT support staff					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	14	2.5	3.3	3.3
	Seriously or somewhat deficient	166	29.7	39.2	42.6
	Adequate	158	28.3	37.4	79.9
	More than adequate or superior	85	15.2	20.1	100.0
	Total	423	75.7	100.0	
Missing	System	136	24.3		
Total		559	100.0		

Q19: What additional IT resources (hardware, software, support) do you need for your current or future research, scholarship, and creative activity?
Summary of comments:

- Increase bandwidth
- Upgrade hard-wire cables and wireless routers
- Provide regular hardware and software upgrades
- Improve desktop support services at various levels and of various types,
    - General university-, college-, and department-level desktop support
    - Specialized desktop support for high-end computing
    - Stable hiring practices for personnel in support positions, especially at department level
- Consider more centralized support structure (for hardware, software, and personnel) for more equitable support across departments and colleges (e.g., some departments invest in hiring someone for desktop support, while others do not)
- Increased use of and information about university site licenses for software

Information Resources

Q20: Please describe the quality of the following information resources available for your research, scholarship, and creative activity.

Q20.1: University access to journal articles (online or print)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	28	5.0	6.6	6.6
	Seriously or somewhat deficient	161	28.8	38.0	44.6
	Adequate	150	26.8	35.4	80.0
	More than adequate or superior	85	15.2	20.0	100.0
	Total	424	75.8	100.0	
Missing	System	135	24.2		
Total		559	100.0		

Q20.2: University access to monographs and edited collections (online or print)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	87	15.6	20.6	20.6
	Seriously or somewhat deficient	124	22.2	29.4	50.0
	Adequate	157	28.1	37.2	87.2
	More than adequate or superior	54	9.7	12.8	100.0
	Total	422	75.5	100.0	
Missing	System	137	24.5		
Total		559	100.0		

Q20.3: University access to reference tools and bibliographic resources (online or print)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	44	7.9	10.5	10.5
	Seriously or somewhat deficient	94	16.8	22.3	32.8
	Adequate	207	37.0	49.2	81.9
	More than adequate or superior	76	13.6	18.1	100.0
	Total	421	75.3	100.0	
Missing	System	138	24.7		
Total		559	100.0		

Q20.4: Inter-Library Loan (ILL) and K-State document delivery					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	43	7.7	10.2	10.2
	Seriously or somewhat deficient	32	5.7	7.6	17.8
	Adequate	173	30.9	41.0	58.8
	More than adequate or superior	174	31.1	41.2	100.0
	Total	422	75.5	100.0	
Missing	System	137	24.5		
Total		559	100.0		

Q20.5: Support from library staff					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	32	5.7	7.5	7.5
	Seriously or somewhat deficient	25	4.5	5.9	13.4
	Adequate	157	28.1	37.0	50.5
	More than adequate or superior	210	37.6	49.5	100.0
	Total	424	75.8	100.0	
Missing	System	135	24.2		
Total		559	100.0		

Q20.6: Digital repository for data sets, work-in-progress, or completed research					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	161	28.8	38.8	38.8
	Seriously or somewhat deficient	73	13.1	17.6	56.4
	Adequate	128	22.9	30.8	87.2
	More than adequate or superior	53	9.5	12.8	100.0
	Total	415	74.2	100.0	
Missing	System	144	25.8		
Total		559	100.0		

Q20.7: Information about collaborative opportunities (grant proposals, shared equipment) with other faculty at K-State					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	57	10.2	13.5	13.5
	Seriously or somewhat deficient	204	36.5	48.5	62.0
	Adequate	121	21.6	28.7	90.7
	More than adequate or superior	39	7.0	9.3	100.0
	Total	421	75.3	100.0	
Missing	System	138	24.7		
Total		559	100.0		

Q21: What additional information resources do you need to conduct your current or future research, scholarship, and creative activity?

Summary of comments:

- Lack of library resources
  - Scientific Databases
  - Journals
  - Monographs
- Library Orientation Imbalance
  - Heavily student-focused as opposed to research-focused
  - Lack of faculty space
    - Carrels for faculty
    - Meeting space for faculty
- Web-Based Data System for Collaborative Projects & Opportunities

Administrative Support

Q22: Please describe the quality of the following administrative support services available for your research, scholarship, and creative activity.

Q22.1: PREAward departmental administrative support					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	97	17.4	23.8	23.8
	Seriously or somewhat deficient	102	18.2	25.0	48.8
	Adequate	118	21.1	28.9	77.7
	More than adequate or superior	91	16.3	22.3	100.0
	Total	408	73.0	100.0	
Missing	System	151	27.0		
Total		559	100.0		

Q22.2: PREAward college administrative support					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	111	19.9	27.3	27.3
	Seriously or somewhat deficient	117	20.9	28.8	56.2
	Adequate	117	20.9	28.8	85.0
	More than adequate or superior	61	10.9	15.0	100.0
	Total	406	72.6	100.0	
Missing	System	153	27.4		
Total		559	100.0		

Q22.3: PREAward central administrative support through PreAward Services					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	97	17.4	23.9	23.9
	Seriously or somewhat deficient	94	16.8	23.2	47.0
	Adequate	122	21.8	30.0	77.1
	More than adequate or superior	93	16.6	22.9	100.0
	Total	406	72.6	100.0	
Missing	System	153	27.4		
Total		559	100.0		

Q22.4: POSTAward departmental administrative support					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	105	18.8	25.9	25.9
	Seriously or somewhat deficient	98	17.5	24.1	50.0
	Adequate	119	21.3	29.3	79.3
	More than adequate or superior	84	15.0	20.7	100.0
	Total	406	72.6	100.0	
Missing	System	153	27.4		
Total		559	100.0		

Q22.5: POSTAward college administrative support					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	131	23.4	32.3	32.3
	Seriously or somewhat deficient	102	18.2	25.1	57.4
	Adequate	121	21.6	29.8	87.2
	More than adequate or superior	52	9.3	12.8	100.0
	Total	406	72.6	100.0	
Missing	System	153	27.4		
Total		559	100.0		

Q22.6: POSTAward central administrative support through PostAward Services					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	118	21.1	29.2	29.2
	Seriously or somewhat deficient	97	17.4	24.0	53.2
	Adequate	134	24.0	33.2	86.4
	More than adequate or superior	55	9.8	13.6	100.0
	Total	404	72.3	100.0	
Missing	System	155	27.7		
Total		559	100.0		

Q22.7: Assistance from your program, department, or college in identifying external grant opportunities					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	63	11.3	15.3	15.3
	Seriously or somewhat deficient	176	31.5	42.8	58.2
	Adequate	129	23.1	31.4	89.5
	More than adequate or superior	43	7.7	10.5	100.0
	Total	411	73.5	100.0	
Missing	System	148	26.5		
Total		559	100.0		

Q22.8: Assistance from the Office of Research and Sponsored Programs in identifying external grant opportunities					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	59	10.6	14.4	14.4
	Seriously or somewhat deficient	160	28.6	39.1	53.5
	Adequate	134	24.0	32.8	86.3
	More than adequate or superior	56	10.0	13.7	100.0
	Total	409	73.2	100.0	
Missing	System	150	26.8		
Total		559	100.0		

Q23: What additional administrative support (pre-award services, post-award services, accounting) do you need to conduct your current or future research, scholarship, and creative activity?

Summary of comments:

- Centralized assistance (through pre-awards and colleges) with identifying grant and collaborative research opportunities
- Improve pre-award and post-award support at college and department levels
- Accounting Issues
    - Financial management of grants at department level problematic
    - Centralize to save money and increase extra-mural funding
- Need for professional support in grant writing

Personnel

Q24: Please describe the <u>quantity</u> of the following personnel available for your research, scholarship, and creative activity.

Q24.1: Number of Graduate Teaching Assistants (GTAs)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	151	27.0	36.7	36.7
	Seriously or somewhat deficient	166	29.7	40.3	76.9
	Adequate	86	15.4	20.9	97.8
	More than adequate or superior	9	1.6	2.2	100.0
	Total	412	73.7	100.0	
Missing	System	147	26.3		
Total		559	100.0		

Q24.2: Number of Graduate Research Assistants (GRAs)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	111	19.9	26.9	26.9
	Seriously or somewhat deficient	211	37.7	51.2	78.2
	Adequate	76	13.6	18.4	96.6
	More than adequate or superior	14	2.5	3.4	100.0
	Total	412	73.7	100.0	
Missing	System	147	26.3		
Total		559	100.0		

Q24.3: Number of Graduate Assistants (GAs)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	213	38.1	52.2	52.2
	Seriously or somewhat deficient	142	25.4	34.8	87.0
	Adequate	45	8.1	11.0	98.0
	More than adequate or superior	8	1.4	2.0	100.0
	Total	408	73.0	100.0	
Missing	System	151	27.0		
Total		559	100.0		

Q24.4: Number of Undergraduate Research Assistants					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	146	26.1	35.7	35.7
	Seriously or somewhat deficient	129	23.1	31.5	67.2
	Adequate	97	17.4	23.7	91.0
	More than adequate or superior	37	6.6	9.0	100.0
	Total	409	73.2	100.0	
Missing	System	150	26.8		
Total		559	100.0		

Q24.5: Number of Lab Technicians and Research Associates					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	210	37.6	51.1	51.1
	Seriously or somewhat deficient	124	22.2	30.2	81.3
	Adequate	63	11.3	15.3	96.6
	More than adequate or superior	14	2.5	3.4	100.0
	Total	411	73.5	100.0	
Missing	System	148	26.5		
Total		559	100.0		

Q24.6: Number of PostDocs					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	218	39.0	53.7	53.7
	Seriously or somewhat deficient	126	22.5	31.0	84.7
	Adequate	52	9.3	12.8	97.5
	More than adequate or superior	10	1.8	2.5	100.0
	Total	406	72.6	100.0	
Missing	System	153	27.4		
Total		559	100.0		

Q25: Please describe the quality of the following personnel available for your research, scholarship, and creative activity.

Q25.1: Quality of Graduate Teaching Assistants (GTAs)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	175	31.3	42.8	42.8
	Seriously or somewhat deficient	76	13.6	18.6	61.4
	Adequate	111	19.9	27.1	88.5
	More than adequate or superior	47	8.4	11.5	100.0
	Total	409	73.2	100.0	
Missing	System	150	26.8		
Total		559	100.0		

Q25.2: Quality of Graduate Research Assistants (GRAs)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	163	29.2	39.9	39.9
	Seriously or somewhat deficient	90	16.1	22.0	61.9
	Adequate	105	18.8	25.7	87.5
	More than adequate or superior	51	9.1	12.5	100.0
	Total	409	73.2	100.0	
Missing	System	150	26.8		
Total		559	100.0		

Q25.3: Quality of Graduate Assistants (GAs)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	266	47.6	65.5	65.5
	Seriously or somewhat deficient	49	8.8	12.1	77.6
	Adequate	65	11.6	16.0	93.6
	More than adequate or superior	26	4.7	6.4	100.0
	Total	406	72.6	100.0	
Missing	System	153	27.4		
Total		559	100.0		

Q25.4: Quality of Undergraduate Research Assistants

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	200	35.8	49.1	49.1
	Seriously or somewhat deficient	42	7.5	10.3	59.5
	Adequate	112	20.0	27.5	87.0
	More than adequate or superior	53	9.5	13.0	100.0
	Total	407	72.8	100.0	
Missing	System	152	27.2		
Total		559	100.0		

Q25.5: Quality of Lab Technicians and Research Associates					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	245	43.8	59.9	59.9
	Seriously or somewhat deficient	47	8.4	11.5	71.4
	Adequate	74	13.2	18.1	89.5
	More than adequate or superior	43	7.7	10.5	100.0
	Total	409	73.2	100.0	
Missing	System	150	26.8		
Total		559	100.0		

Q25.6: Quality of PostDocs					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	268	47.9	65.7	65.7
	Seriously or somewhat deficient	39	7.0	9.6	75.2
	Adequate	63	11.3	15.4	90.7
	More than adequate or superior	38	6.8	9.3	100.0
	Total	408	73.0	100.0	
Missing	System	151	27.0		
Total		559	100.0		

Q26: If any personnel are less than adequate for your current or future research, scholarship, and creative activity, please explain below.

Summary of comments:

- GTA/ GRA stipends
  - Increase number and amount of pay
  - Non-uniformity across campus
- Need waivers for GRAs
- Quality of Graduate Students
  - Improve/Increase recruitment efforts
- Graduate Education
  - Imbalance on undergraduate education
  - Credit and recognition for graduate instruction

Q27: Please indicate the adequacy of current graduate student recruitment and retention for successful research, scholarship, and creative activity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not applicable	81	14.5	20.0	20.0
	Seriously or somewhat deficient	226	40.4	55.7	75.6
	Adequate	83	14.8	20.4	96.1
	More than adequate or superior	16	2.9	3.9	100.0
	Total	406	72.6	100.0	
Missing	System	153	27.4		
Total		559	100.0		

Final Comments

Q28: Please offer below any additional concerns related to resources for research, scholarship, and creative activity at K-State.

Summary of comments:

- Research culture
    - Balance between Teaching and Research
        - Emphasis on undergraduate education has negative impact on research
    - Increase Research Advocacy Efforts
        - Deans must emphasize research
- Coordinate Fund Raising Efforts
    - Foundation expand to cross department/cross college efforts
- Humanities & Arts/ Social Sciences
    - Not recognized for research efforts
        - Time to do research
        - Travel money
        - Summer salary

Appendix 4

COMPARISON OF STIPENDS AND TUITION REMISSION OF PEERS AND ASPIRING PEERS
2009-2010 Academic Year

University	Stipend (9 months half time)	Tuition Remission/Waiver
Colorado State	$11,745 (Minimum)	Tuition remission may be provided as financial aid as "qualified tuition reduction given for educational purposes under Section 117 of the Internal Revenue Code. Tuition is paid commensurate with graduate appointment for up to 9 hours. Graduate students on half-time appointments receive full tuition. Graduate students on quarter-time appointment receive half tuition paid. GTA tuition is paid primarily by state-appropriated Resident Instruction budget from the State if Colorado. Tuition premiums are paid from an account administered by the Graduate School for qualified appointments. The Graduate School administers a GRA tuition premium account to fund the differences between resident and non-resident tuition for non-resident first year GRA. Typically paid by an external fund such as a grant.
Iowa State	$12,150 (Minimum) $28,350 (Maximum)	All graduate assistants appointed $\leq$ 25% pay resident tuition rates. Graduate College Scholarships may be awarded to graduate assistants appointed >50% in the form of 100% of tuition for doctoral, M. Arch, M. Landscape Arch, and MFA students or 50% of tuition paid to those appointed 25%. Masters students on 50% appointment receive 50% of their tuition paid as a Graduate College Scholarship (25% tuition paid for 25% appointment). Appointments must be for a minimum of 3 months during the semester. All graduate students are assessed at the full-time resident rate for 9 credit hours each semester. Tuition assistance is available for 3 years for students pursuing a masters degree and for 5 years for doctoral students.

University	Stipend (9 months half time)	Tuition Remission/Waiver
Kansas State	$7,500 (Min Masters degree) $8,500 (Min Doctoral degree) Average: $11,388 GTA Average: $11,596 GRA	All graduate assistants appointed 50% pay resident tuition. Tuition is waived for GTAs on 0.5 appointment for up to 10 hours fall and spring semester and 6 hours in summer, if on an appointment. Students enrolled in more than 10 hours pay the difference in tuition. Colleges and/or departments can pay in excess of the 10 hours paid by central administration funds.
Michigan State	$11,988 (Minimum) $20,790 (Maximum) *Note: Based on Level 1, 0.5 FTE amounts for T, TE, and R appointments. T, TE, and R function (i.e., appointments) receive the same stipend amount	Tuition is waived for up to 9 hours for assistants for fall and spring semesters and 5 hours in summer. Note: T designation represents a teaching function (directly involved in teaching) and is included in the collective bargaining unit (GEU). TE also represents a teaching function (grading, tutoring, etc.) but it is excluded from the collective bargaining unit. R designation represents a research appointment.
Mississippi State	$5,400 (Minimum)	100% of out-of-state tuition is waived for graduate assistants. 71% of the in-state tuition is waived for 0.5 FTE assistants for 9 hours for fall and spring semesters and 6 hours for summer. For those assistants covered under a grant, the grant funding is used to pay the waiver. For other assistants, state funds cover the cost of the tuition waivers.
North Carolina State	$6,000 (Minimum)	Tuition is waived for a limited number of semesters for an unlimited number of hours. To be eligible, students must be appointed on an assistantship or fellowship paid through the University for the minimum stipend specified. The waiver does not apply to student fees. Graduate School manages state-appropriated budget and allocates funds for Graduate School support plan in cooperation with designated coordinators from colleges/university.

University	Stipend (9 months half time)	Tuition Remission/Waiver
Oregon State	$15,620 (Minimum) $16,576 (Maximum) *Note: Teaching assistants and graduate assistants are represented by the Coalition of Graduate Employees (CGE).	GTAs and GRAs pay a set amount per term plus overtime charges for each credit above 16 hours. For the 2009-2010 academic year, this amount is $546.27. All assistants are required to be enrolled in 12 hours. Departments are provided with an institutional subsidy to cover tuition waivers. It can only be used for waivers and any unused funds will be distributed to departments with negative balances.
Texas A & M	$12,547 GTA (Average) $13,121 GRA (Average)	Full tuition waiver is provided for GTAs appointed ≥ 0.5 FTE for up to 9 hours fall and spring semesters and 6 hours for summer. The waiver does not include student fees. Full tuition waiver is provided for GRAs employed by the university and whose work is closely related to their academic field of study who are appointed ≥ 0.5 FTE for a maximum of 9 hours fall and spring semesters and 6 hours for summer. All graduate assistants and all eligible students who receive a competitive scholarship or $1,000 or more for the academic year are eligible to pay resident tuition for the year(s) of the award. If the assistants are paid from state or other internal funds, the waiver comes from these funds. If the assistants are paid from external funds, tuition must be written into the grant or contract.