

## **Protecting the Academic Core**

### **Academic Core Sub-Committee of the Faculty Assembly 2009-2010**

**Jim Martin-NCSU Co-Chair, Catherine Rigsby-ECU Co-Chair, Richard Beam-WCU Co-Chair**

**Stella Anderson-ASU**

**Michael Ramey-ASU**

**Susan Staub-ASU**

**Floyd James-NCA&T**

**Minnie Sangster-NCCU**

**Margery Overton-NCSU**

**Roy Fielding-UNCC**

**Carol Brown-UNCCH**

**Paul Duvall-UNCG**

**Kimberly Cook-UNCW**

## **I. Introduction**

The recent global economic crisis has impacted all sectors of the economy, both public and private. Public higher education in the State of North Carolina, which has historically received a greater than average amount of its financial support from the State, is particularly vulnerable to economic downturns since there is limited private and/or independent funding to provide institutional insulation to mitigate decreasing public revenue. Commensurate with increased economic stress, a greater number of persons typically turn to higher education to pursue opportunities that might better equip them to become competitive in a tight economy. Thus, this need for increased accessibility to higher education comes at the same time that resources are being curtailed. Too often academic quality suffers as institutions must accommodate growth in capacity without the commensurate resources. Nevertheless, allowing the quality of the academic core to erode during a time of economic stress only diminishes the capacity for higher education to provide the foundation necessary for future growth. It is imperative that we make every effort to protect the academic core of our universities from the negative impacts of severe budget cuts.

Throughout the course of budget cutting discussions seeking to “protect the academic core” while finding means to increase institutional efficiency and effectiveness, it has become apparent that there is no consistent definition of the elusive “academic core” that is to be protected. “The academic core” is not something that can readily be reduced to a set metrics for simple evaluation. Nevertheless, to ensure current and future health of our institutions of higher education, it seems important that careful analyses be made to understand how investments and cuts correlate with various student, faculty, infrastructure, etc. measures, which reflect on how well budgetary decisions and other strategic planning are in fact protecting that core.

As faculty of the University of North Carolina system of 17 campuses, we are committed to providing accessible, high quality higher education to the people of North Carolina. Thus, we have initiated the following study to both attempt to provide some definition to the concept of the “academic core,” and also to consider a series of metrics that can assist in understanding the impact of past investments and provide direction to future strategic planning. We recognize that each of our institutions has a distinct mission. Thus, what might be a central part of the academic core for one institution, may not have the same central importance to another. Clearly then, from a university system perspective, which is the level that gross legislative budgetary appropriations are made, this analysis must set out principles that appropriately reflect our differentiated missions.

## **II. Definition of the Academic Core**

The concept of an academic core suggests a radial type prioritization of institutional structure and function, with a highly important center being most critical to defining and carrying out the institutional mission. Implied by this model, there must also be a shell around the core, i.e. other institutional functions that add value to the overall mission while being less definitional. A shell generally serves a protective role to its core. In addition, the shell provides the interface (or reactive surface) between the core and the external environment. At the same time, one must be cognizant of the risk of partitioning

resources to burnish the shell so as to mask systemic problems within the core. This core/shell analogy suggests the need for careful and comprehensive analyses in the context of budget cutting discussions since an effective shell is in part critical for protection and maintaining the health of the core.

Fundamental for consideration of the academic core is a need to understand the academic mission. The American Heritage Dictionary defines academic as “1. Of, pertaining to school or characteristic of a school. 2. Relating to studies that are liberal or classical rather than technical or vocational.” At a most basic level, then, the academic mission includes the imparting of knowledge, development of critical thinking, and the discovery of new knowledge. It is important to note, that while “academic” pursuit itself does not emphasize the technical or vocational, much of the historic success of the academy is the manner in which academic pursuits inform higher levels of, and more creative, technology and vocation.

Because of academic higher education’s success in developing skills that are valuable for both technical and vocational pursuits, some now look to higher education primarily for what might be described as “*preparing the workforce*.” While an extremely important by-product of higher education, the academic core that creates this “workforce by-product” is that which fosters the learners, the discoverers and the discovery of knowledge. And yet, this “*discovery of knowledge*” component of higher education is extremely vulnerable during a time of economic recession because the benefits or application of such new knowledge are rarely immediately apparent. The academic core requires long term investment. Arguably the success of the US University system’s fostering this discovery component of higher education is the reason it remains the global gold standard of higher education. Nevertheless, increasing calls for metrics that document productivity and workloads make maintaining the quality of both human and physical infrastructure to support education and discovery, the academic core of a university, particularly at risk. Transformational discovery requires time and space to think...something that is not readily amenable to spread-sheet analyses.

While an understanding of the academic core does not have easily defined metrics, it is worthwhile to evaluate a diverse set of indicators to consider its health and sustainability. In this white-paper, we attempt to assemble the following set of metrics which provide important information regarding personnel, infrastructure and funding for such analyses.

- *M1. Employees by Activity*
- *M2. Tenured/Tenure Track Faculty*
- *M3. Types of Faculty Appointments*
- *M4. Student Faculty Ratios*
- *M5. Physical Infrastructure(expenditures)*
- *M6. Physical Infrastructure (square footage)*
- *M7. Development/Advancement*

In this regard, it is helpful to consider the core/shell schematic presented in Figure 1 which describes the academic core with respect to activities and organizational units

emanating from the very heart of higher education, the relationship between the learned and the learners. We recognize that one could also attempt to define the academic core based on curricular issues; and a curricular core/shell is equally important to the health of the academy. However, the curricular core of a University is already significantly defined by its general education and academic major or professional program requirements. Because this report is focused on budgetary considerations necessary to protect the academic core, it will emphasize the personnel and infrastructure necessary to carry out the academic mission.

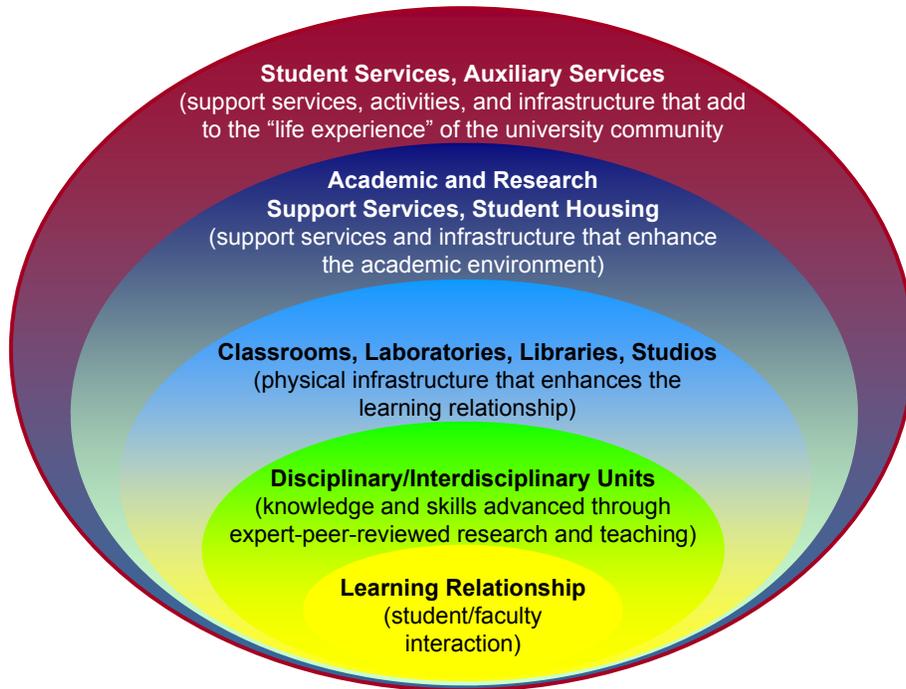


Figure 1. Concentric Ring Model of the Academic Core.

At the very heart of the academic core is a requirement for a learning relationship between the learners and the learned. This relationship may be manifest in diverse situational contexts ranging from the classroom, laboratory, stage, studio, research projects, internships, etc. Faculties are the primary institutional personnel to carry out this function. Clearly the nature and number of faculty appointments **M1-M3** significantly inform the institutional capacity to affect strong learning relationships. Highly correlated with the nature and number of faculty is the faculty to student ratio for such relationships, **M4**. Here it will be important to parse faculty types (**M3**) based on the activity performed (for example, it doesn't make sense to include research or extension faculty when figuring the ratio of faculty/course sections taught).

While the relationship between faculty and student is central for education, the environment in which learning experiences occur is also extremely important for a healthy academic core. Information compiled in **M5** and **M6** seeks to evaluate where

investments are being made with respect to building and renovation of classrooms, laboratories, libraries, etc., i.e. the infrastructure to facilitate learning/discovery environments. Closely related to the needs for physical infrastructure is the need for adequate funding. Whereas a majority of the University system's institutional funding is directly appropriated by the legislature, each university has significant control over its own advancement and development efforts. Data summarized in **M6** thus seeks to understand the relative distribution of effort toward generating support for the academic core.

Faculty cannot function, nor can necessary student services be provided without a diverse set of other university functions including administration, student affairs, facilities and maintenance, etc. Similarly, investments supporting infrastructure such as heating plants, campus safety, transportation, etc...may not directly be part of the academic core, but without them the academic core is definitely not protected. Clearly, a balance across the various employment sectors and infrastructure investments is required, though the specific distributions are expected to be significantly different between institutions depending on their distinctive missions. The relative distribution of employees according to employment activity, **M1**, and investments in physical infrastructure, **M5-M6**, is collected to evaluate trends in both personnel and physical infrastructure to ensure that investments appropriately match institutional mission.

### **III. Metrics to Evaluate the Health of the Academic Core** (*Dates indicate the fall of the academic year e.g. 2008 represents the 2008-2009 academic year.*)

#### ***M1. Employees by Activity***

For a university to function, a diverse set of employees are needed from professional to non-professional, from faculty to staff. IPEDS, (integrated post secondary education data system) maintains a national database that can be useful to track trends in institutional employment. Their reporting system divides employees into Professional (Administrative, Faculty, Professional) and Non-Professional (Technical, Clerical, Skilled Crafts, Service Maintenance) categories.

<http://nces.ed.gov/pubs2009/2009154.pdf> . While these classifications provide broad definitions, and the specific definitions have, on occasion, changed from year to year, comparison of this nationally reported data is useful to understand personnel investments. Specifically, with respect to “protecting the academic core,” it may be most informative to consider any changes to the percentage of faculty with respect to the total employees of the institution.

#### ***M2. Tenured/Tenure Track Faculty***

While the specific missions of each of the UNC system institutions are distinct, it is a reasonable assumption that the criteria for tenure should be reflective of the comprehensive realms of responsibility that make up the core academic mission of that particular institution. Clearly research extensive universities will have a greater emphasis on research to achieve tenure whereas a comprehensive undergraduate institution will have a greater emphasis on classroom teaching and curriculum development as criteria

for tenure. Non-tenure track faculty generally fulfill extremely important functions at each institution, but their efforts tend to be focused on a specific realm of responsibility. By contrast, the tenure/tenure track rank carries with it the expectation of effort in diverse realms of responsibility across the academic core of the institution. Thus we submit that evaluating trends in the number of tenure and tenure-track faculty should provide a significant measure of institutional investment to “protect the academic core.” While many reports of tenured faculty only list “instructional faculty,” faculty participation in administration reflects an important integration of an academic understanding into administrative decisions. Thus, where possible these data should include all tenured/tenure track faculty inclusive of instruction, administration, research...

### ***M3. Types of Faculty Appointments***

While the tenured and tenure track faculty described above provide a comprehensive measure of personnel investment in the academic core, it is also instructive to consider the diverse faculty appointments, both tenure track and non-tenure track, to more fully understand the diversification of personnel investment across the institution. The data reported here should include all EPA employees with faculty rank.

### ***M4. Student Faculty Ratios***

The relationship between faculty and students is clearly the most critical component of the academic core in higher education. This relationship too, will have similarities and differences across distinct types of institutions. Nevertheless, the fundamental principles of high quality education require the human interaction in order to provide appropriate instructional, mentoring and evaluatory engagement, which may range from curricular advising to master/apprentice-type engagement. It is recognized that with respect to maintaining the quality of the academic core, the student/faculty ratio may be skewed to larger numbers for classroom instruction, whereas instruction that involves hands-on engagement (research, performance, service learning...) requires a significantly smaller ratio. However, even traditional classroom or on-line education has limits with respect to the student/faculty ratio in order to have effective learning. To evaluate the academic core, we suggest that it is important to understand student/faculty ratios that recognize the differential types of students and of faculty appropriate for distinct functions. For example, the number of graduate students should be evaluated consistent with the number of graduate faculty, not total faculty. Similarly the number of courses taught should be evaluated with respect to the number of faculty teaching those courses, not the total number of faculty. Furthermore, graduate education is generally conducted primarily out of the classroom, but involves extensive faculty engagement. To document this, the number of graduate students can be compared with the number of faculty who chair graduate committees.

The numbers reported in the appendix tables are head counts for students; courses should be defined as regular academic courses, not departmental seminars, research credits, independent study... (One could alternatively try to tabulate in terms of SCH.)

***M5. Physical Infrastructure: Expenditures***

***M6. Physical Infrastructure: Square Footage***

The physical infrastructure of a University directly impacts the ability to carry out its mission, and thus maintain/protect the academic core. Many facilities have multiple uses. For consideration of campus investments in physical infrastructure, classrooms, laboratories, and libraries are considered to most directly impact the academic core. However, investments in the physical plant, and support facilities, including administration and student services, are also important for the successful function of a University.

Two types of reporting seem necessary evaluate the physical infrastructure. The expenditures for new construction and renovation provide a direct measure of the annual infrastructure investments being made. By contrast, the total square footage assigned to differential functions provides a picture of the over all institutional capital investment. These tables taken together provide important perspective given that an institution may have no change in, for example, classroom square footage but have made important investments in renovating that space to ensure high quality facilities. By contrast, there may be cases where existing classroom or laboratory space is aged and ineffective. In such a case, a square footage analysis may show adequate infrastructure, but expenditures may show a lack of investment to maintain core quality.

***M7. Development/Advancement***

Private contributions are a critical component for the successful operation and growth of universities. These provide both sustaining operation, as well as greater flexibility in the creation of new and innovative programs. It is important to understand the relative balance of revenues that support the academic core. Specifically, support of scholarships, endowed programs and professorships, academic and research facilities will have the most direct impact on the academic core.

#### **IV. Data Collection**

To date, two methods have been utilized to begin to assemble data relevant to the above metrics. This report, and all data files can be found at <http://uncfacultyassembly.northcarolina.edu/>. Members of the Faculty Assembly Academic Core Sub-committee extracted data from campus based institutional planning and research websites and campus factbooks from each of their respective campuses. These data are assimilated in the spreadsheet *Academic Core-Master.xls*. The data collected in this file, for the most part reflect reported full time equivalents (FTE). Data were also solicited from the institutional planning and research offices of the General Administration of the University of North Carolina System. It was anticipated that the data from the General Administration would be most consistent and reliable for inter-institutional comparisons. These data are available as *M1 IPEDS.xls*, *M2 Tenure Status.xls*, *M3 Inst Fac by Type.xls*, *M4 Student Info.xls* and *M5 Facilities.xls*. The personnel data collected in these files are reported as headcounts, thus it would be expected to exceed the FTE numbers extracted from campus sources. We gratefully acknowledge the assistance of Jim Saddler, Diana Haywood and Jeff Hill for providing this data.

The data collected represent an important step in beginning the process of evaluating the strength of the University's academic core. As will be discussed below, these data are incomplete and there are significant questions as to exactly what cohorts fit into specific definitional categories, thus making it difficult to draw any firm conclusions. Furthermore, it has not yet been possible to collect significant financial data as proposed for tables M5 and M7. We have chosen to leave the place-holders describing these tables because an understanding of where financial investments are being made will be important for comprehensive analysis of the protection of the academic core. The academic core sub-committee also suggests that documenting and tracking how state appropriated funds are being used relative to the academic core should be included in future academic core analysis. The Faculty Assembly looks forward to continuing to work with the offices of institutional research, planning and analysis to develop a more comprehensive and self-consistent set of data that will afford effective evaluation of the academic core.

#### **V. Preliminary Observations**

1. *Who are the faculty?* Having articulated that the learning relationship between students and faculty is the central component of the academic core, student faculty ratios are a critical measure of its health and protection. Unfortunately, the data collected to date does not yet enable extraction any clear metrics for such evaluation. It is apparent that two particular challenges need to be addressed to facilitate useful evaluation of student faculty ratios. (a) There must be a consistent set of definitions used for the categorization of employees. (b) It is necessary to differentiate the different kinds of employees who constitute the faculty.

(a) In order to track employee demographic trends, it is important to maintain data with respect to a consistent set of functional employment definitions. It is recognized that various reporting agencies periodically change definitions of who to count in which

category. But such definitional changes impede longitudinal analysis of data trends. This becomes dramatically apparent when considering the IPEDS data reported in our M1 tables. Here a broad category of “instructional faculty” is described. The plot of the percentage of the total number of university employees who are faculty is shown in Figure 2. Given the size of the two populations, instructional faculty and total employees, dramatic changes in these numbers are not anticipated from year to year; yet numerous ones exist. Certain of the dramatic fluctuations observed in the data may be due to errors; such errors likely account for the spikes for UNC-SA in 2004 and WSSU in 2005. However, other dramatic variation is likely due to changes in the definitions of “instructional faculty.” For example, it has been established that the large jump in the relative number of instructional faculty between 2002 and 2003 for NCSU and NCA&T is due to a definitional change by which cooperative extension and agricultural research faculty were subsequently to be considered in the “instructional faculty” cohort. These changes by a total of 371 and 90 faculty members in a single year, respectively, have a dramatic impact when student faculty ratios are calculated. To effectively evaluate changes in the faculty, as well as changes in other employee cohorts, data that uses a consistent set of definitions is critical.

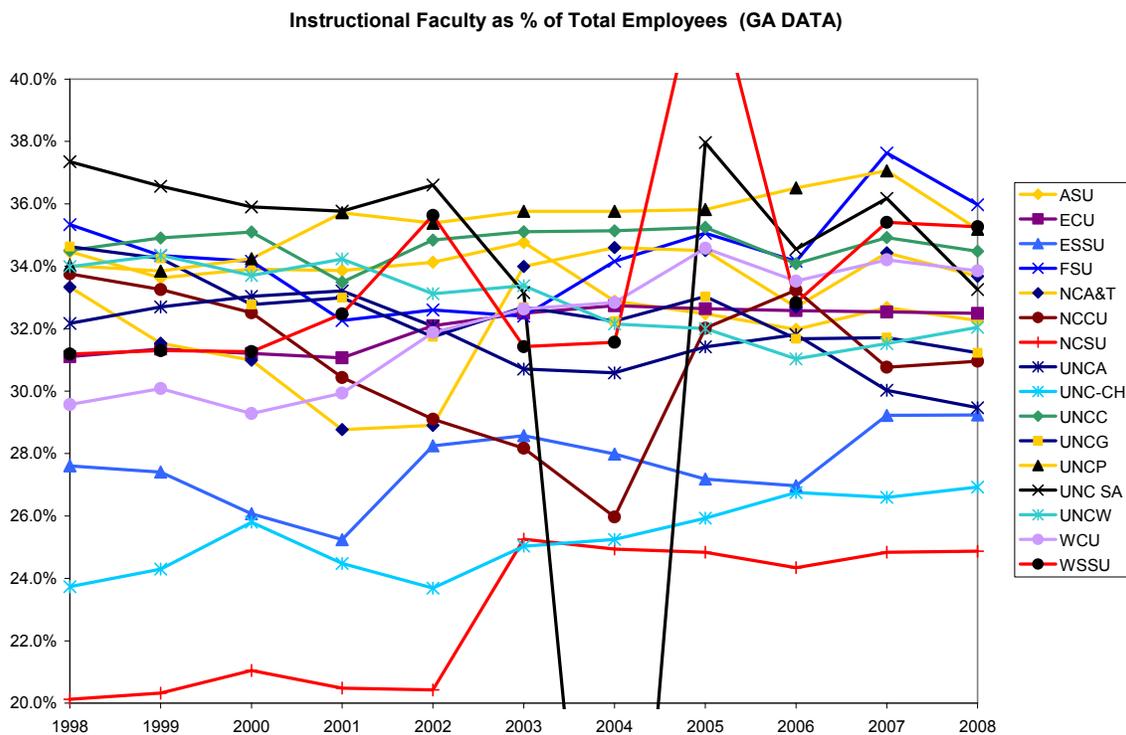


Figure 2. Plot of the number of instructional faculty/total # of employees, based on IPEDS data provided by UNC-GA, for each campus in the UNC system over the decade 1998-2008.

(b) Faculty carry out important, yet diverse functions at a university. However, data obtained to date largely consider only the cohort described as “instructional faculty.” Subsequent tables M2 and M3 provided by UNC-GA only track tenure status and rank of “instructional faculty.” Yet we know that some faculty are involved in administration,

some faculty are exclusively involved in research, some in extension work, some perform clinical functions, etc. Some faculty interact with graduate students almost exclusively, while others may primarily engage in undergraduate teaching. Which of these are, or are not, included in the “instructional faculty” cohort? It is interesting to note, for example, that at NCSU where data listing all EPA employees was available for the years 2003-2008, 42 different faculty ranks were identified. In 2008 these consisted of 2270 regular ranked faculty (NTT and T/TT) along with 165 visiting or adjunct appointments. This number is in noted contrast to the IPEDS reporting of 1875 instructional faculty. Such an evaluation of ranked faculty for each of our system institutions will begin to identify exactly who are our faculty.

Furthermore, for the purposes of evaluating the academic core and effective strategic planning, we submit that it would be invaluable to track:

- The number of faculty teaching undergraduate courses.
- The number of faculty teaching graduate and professional courses.
- The number of faculty who serve as the principle advisor to masters and doctoral students.

*2. The Non-Tenure Track vs. Tenure-Track faculty ratios point toward a trend that reflects a view of faculty as contractors rather than being scholars who own the responsibility to maintain and strengthen the academic core.* While the collected data is deficient in its lack of definitional clarity, as noted above, one of the few apparent trends is that over all, the most significant growth in the faculty ranks is among the non-tenure track faculty ranks. As one means of analysis, the percentage of the total instructional faculty that are non-tenure track was calculated. The decade’s worth data for each institution was then fit with a simple linear regression. While the scatter in the data does not precisely fit a linear equation, the slope of the lines representing the percent change per year is more insightful than simply comparing the difference between arbitrary starting and ending points. These data are plotted in Figure 3.

Annual % Change in the Fraction of Instructional Faculty that are NTT

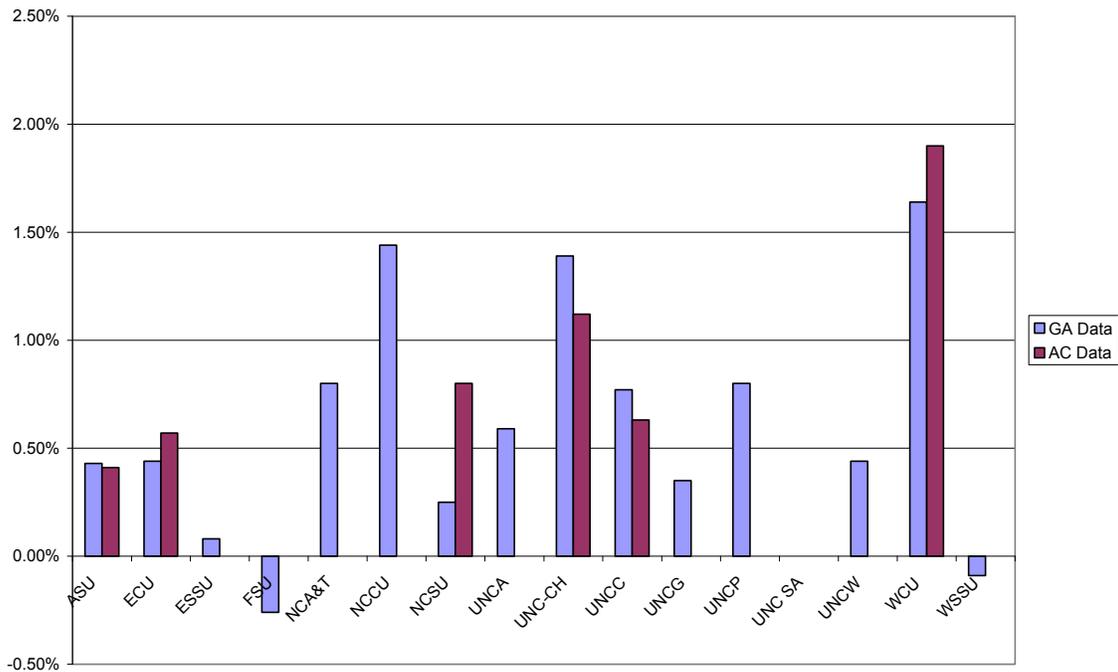


Figure 3. Annual percentage change in the number of instructional faculty who are not tenured and not on the tenure track. The annual % change is calculated based on a linear least squares fit over the decade 1998-2008. The blue bars represent headcount data provided by the UNC-GA. The maroon bars represent FTE data obtained by the Academic Core subcommittee from individual institutional sources. (The NCSU FTE data has been corrected for the above noted redefinition of instructional faculty whereas the GA headcount data has not.)

These data demonstrate that only two of our campuses have a negative trend, i.e. their instructional faculty is increasingly made up of tenured and tenure-track ranks. Five institutions are experiencing approximately a 0.5% increase per year, four institutions are experiencing a 0.8% increase per year, and three institutions exhibit an increase of well above 1% per year. These point to a 5 to 10% increase in the percentage of non-tenure track instructional faculty over the decade. Though data with sufficiently clear definitions are not yet available, it is likely that even greater percentages of NTT faculty than these would be observed were it possible to track the faculty directly engaged in undergraduate instruction.

Such trends toward an increased number of non-tenure track faculty is a national trend. Nevertheless, we submit that this trend is indicative of serious concern with respect to the academic core. As discussed above, the requirements for tenure at each institution should reflect its distinct mission. Each faculty member in pursuit of, or having attained, tenure is expected to be engaged in the diverse realms of academic responsibility consistent with their institution’s mission. When effectively implemented, the concept of tenure expects a high level of academic responsibility to both discover new knowledge and to invest in

the health of the academic core. By contrast, the non-tenure track is instituted for the sake of contract employment. When a faculty's responsibilities are reduced to a simple contract, their investment in the academic core, the learning relationship between student and faculty, is correspondingly diminished.

These trends which diminish tenure, further give serious pause with respect to the effectiveness by which the academic core is protected by academic freedom. Academic freedom is integral to enable the practice of academic responsibility. While our system's CODE ensures "academic tenure," as opposed to permanent tenure, to all faculty members, including those on contract, practically such protections ring hollow. Our policies ensure that NTT faculty contracts serve as both employment and termination notice. NTT faculty contracts are the only type of EPA employment contract in the system that cannot be renewed (any subsequent contracts are required to be totally new appointments). While subsequent contracts may be at higher rank, there is no provision for developing seniority, or an effective institutional commitment. And certainly there is no protection for addressing matters that may be controversial, no matter how relevant.

Together, the corresponding needs for academic responsibility and the protection of academic freedom are critical to maintaining and strengthening the academic core. The commitment to protecting this core is brought into question based on the hiring trends which indicate a growing reliance on contract faculty, rather than a commitment to faculty with comprehensive responsibility for the academic core.

*3. The Higher Education Bond of 2000 had a significant and beneficial impact to the academic core.* It has not yet been possible to fully understand the trends in the investments in facilities as they relate to the academic core. Nevertheless, for an initial analysis, consider simply evaluating the assigned instructional square footage with respect to the total number of students. Again definitions are critical, but they are well articulated in the facilities planning documents. By the system definition, "Instructional Space" includes classrooms, laboratories, research laboratories and support facilities associated with graduate and undergraduate research, offices, instructional conference rooms, etc. Here instructional space is differentiated from research, public service, academic support, student service, institutional administration, physical plant, independent operations and unassigned space. Specifically the "research" designation is used to distinguish institutes, research centers, and individual/project research from instructional research space utilized for undergraduate and graduate education. Figure 4 shows for each campus the ratio of instructional square footage divided by the total number of students over the last decade. The high square footage per student for UNC-SA (>300 sq ft/student) is off the scale and is likely an aberration because the high square footage needs for performance space as well as an undercounting of students since the high school enrollment is not included.

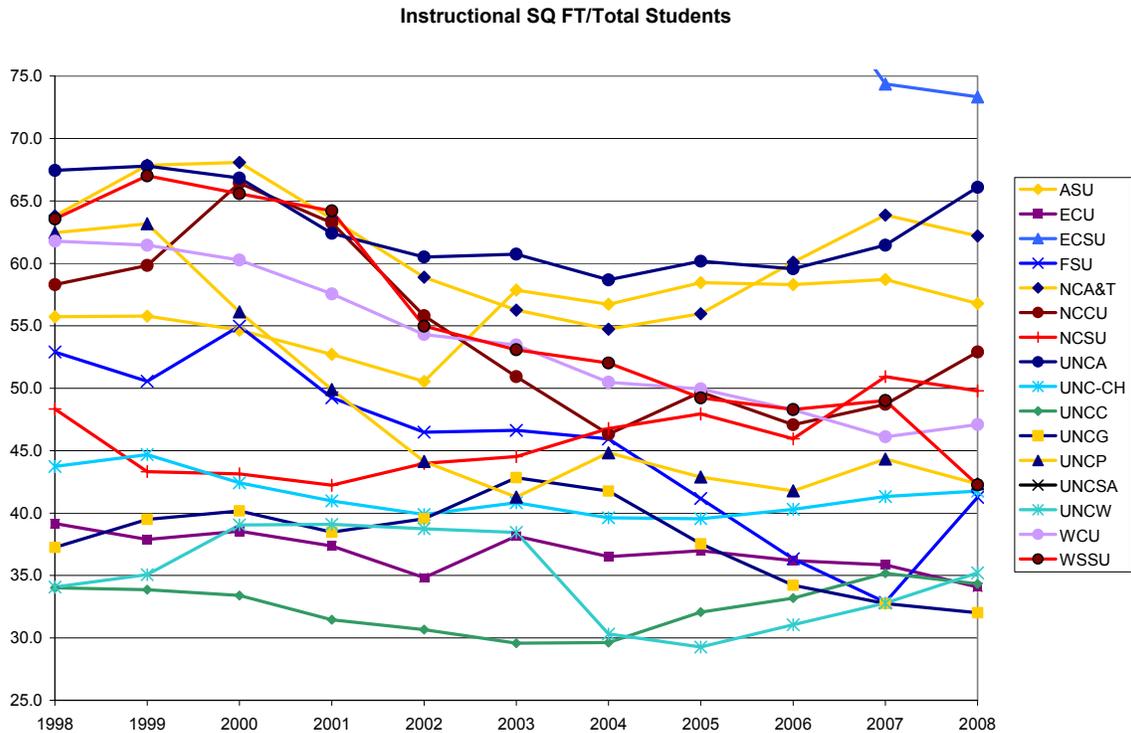


Figure 4. Instructional square feet compared to the total number of students at each of the UNC system institutions.

The data plotted in Figure 4 shows that in the early part of this past decade almost all of the system schools were experiencing a significant decline in the instructional square footage per student. This is a clear reflection of the space needs that were presented to the citizens of North Carolina to provide justification for the 2000 Higher Education Bond. With a clear investment to protect the academic core, the decline in square footage per student bottomed out in the middle to later part of the decade as construction projects from that bond were completed.

Having noted the clear success of the higher education bond for providing necessary infrastructure, it is important to recognize that comparing the pre- and post-bond square footage to student ratios finds that only one campus has experienced a significant gain, six campuses are at an approximate break-even point, and nine campuses end the decade with a lower instructional space/student ratio than they started with. If and where this is a result of building use efficiency, the academic core remains protected. If, however, these result from the student population exceeding the capacity of the infrastructure, then the academic core is not protected. In any case, serious attention must be given to these infrastructure needs given the projected increase in the number of students to enter the UNC system. The projection of an additional 80,000 students in less than a decade will likely require increases in the infrastructure's capacity by more than the added capacity from the 2000 higher education bond.