

# PLANNING FOR CLEMSON'S FUTURE

**The challenge is great. The opportunities are even greater!**

## **To the Reader:**

The purpose of this document is to share with you the ideas, reasoning, and thoughts that are the basis for an academic plan that I hope you will make a reality—an academic plan that belongs to you—the faculty and staff.

You will probably agree with some ideas, question others, and disagree with a few (hopefully, only a few) thoughts expressed here, but together we should be able to find the solutions to our challenges and make exciting things happen.

Please post your questions and comments on our web message board available by navigating to [http://virtual.clemson.edu/groups/PROVOST/ap\\_home.html](http://virtual.clemson.edu/groups/PROVOST/ap_home.html). You are also invited to attend an open discussion of the Academic Plan at our next town meeting scheduled for 24 September 2002 at 10:00 AM in Tillman Auditorium.

## **Acknowledgements:**

This plan is the work of many. Vice Presidents Kelly, Przirembel, and Helms visited 61 departments and Research and Education Centers to gather information. You ALL did a great amount of work preparing for our visits. Afterwards, the Vice Presidents tackled the important task of trying to develop an academic plan that would allow each department to reach its potential and would make it possible for all faculty and staff to pursue their individual passions. The members of the Administrative Council and Board of Trustees served as supportive listeners and critics. Most important, Clemson's President, James Barker paved the way for the process by articulating a clear vision, inclusive mission statement, and a set of attainable goals.

## **Academic Planning: Moving to Top 20:**

In thinking about 2002-2010, we should assume that there will be no *marked* increase in tuition or state funding. Therefore, we must develop a plan that focuses on working smarter, differently, and more efficiently; in other words, *changing* how we operate.

Lombardi (2000), in his report, *The Top American Research Universities*, makes the following observation about the change process:

“Research Universities live in a highly competitive marketplace and none of those in the top categories is likely to cease improving. This means that to get relatively better, a University must match and then exceed the growth of its competitors.”

However, “...universities have an organizational model that emphasizes self-replication. Institutions with large numbers of competitive faculty and students

tend to replace these faculty and students with individuals of equivalent competitiveness. Those with less competitive faculty also replace themselves with less competitive faculty.”

“Overall, absent a strong drive for change, most institutions stay more or less the way they are: stable, competitive at their level, but unlikely to move dramatically without **significant and unusual impetus.**”

Clemson University, like many universities, is about to experience an unprecedented turnover in faculty, a cycle that repeats itself, to varying degrees of magnitude, only every 25-30 years. As we move into this challenging time of saying goodbye to good friends and welcoming new colleagues, we have an opportunity to change—not to replicate what already is.

The key to formulating a successful plan—for seizing the opportunity to change—lies in providing the *impetus* for change.

### **Clemson’s Challenge:**

Some universities provide the impetus for change by downsizing in order to cut costs and reallocate revenues to new priorities. In some cases, major programs or divisions are eliminated. In other cases, departments are “merged.” Clemson University has already “downsized.” Even if the number of departments could be reduced from 57 to 40, we would net only \$2-3 M, a very small fraction of our total budget. This would hardly provide the impetus or revenue necessary for sweeping or sustained change. Faculty and staff morale would suffer and political fallout across the state would generate negative press, damaging the public perception of Clemson University.

Instead of implementing a “slash-and-burn” strategy, Clemson University will creatively redirect and refocus resources in another way—but we must be smart about what we do! Over the next eight years (2002-2010) we will have the opportunity to reallocate approximately \$19.2 M in faculty resources. Approximately 41% of our faculty are TERA’d or will be eligible to retire by 2010 (age 62 or approximately 28 years at the University). On the conservative side, we assume that 20% of all positions must be replaced to maintain the quality and integrity of basic core disciplines. (While this may seem to be a small percentage, remember that more than 600 faculty will remain in place.) If we assume that only 80% of the remainder of the faculty members eligible to retire actually retire, we estimate that **320 positions** (tenure track only; this does not count 76 lecturers also eligible to retire) or **\$19.2 M in salaries** could be reallocated to redirect departments and programs toward new goals. Departmental mergers should evolve as reallocations occur and collaboration increases.

While the loss of current talent will be daunting, the positions released by this turnover will allow a major reallocation of resources. However, we must carefully and thoughtfully direct the reallocation process—PLAN for it—or, like most others, we will reinvent ourselves and be no closer to our Top 20 goal than we are today.

## The Change Process: Developing An Academic Plan

The primary impetus for change and the foundation for Clemson's Academic Plan is a call to **focus** our talents, energies, and resources on eight broad "emphasis areas" that foster collaboration and promote the integration of teaching, research, and service. Instead of marshalling all of our resources to departments and colleges, we will focus new resources (Road Map funds) and reallocations on programs that provide interdisciplinary research and service venues, unique platforms for enhanced scholarship, and increased opportunities for graduate and undergraduate students. Enhancing our academic reputation for *focused work in emphasis areas* will also result in a much needed "recruiting advantage" as we seek to hire new faculty and double our graduate enrollment.

We expect to build strong collaborations by hiring new faculty whose scholarly endeavors and research passions enrich and build our emphasis areas while contributing to the development of stronger, strategically focused departments. The creativity of our faculty will open avenues for work in the emphasis areas to enhance undergraduate and graduate curricula while we continue to maintain the integrity of all disciplines. We will honor respected scholars in ALL disciplines and seek to integrate their expertise into the collaborative work of the faculty. **We will guide new resources** (320 new hires, \$19.2 M in salaries, and \$21 M in Road Map funds) **toward programs and not just departments**. This will represent a cultural shift for many of us in the way we administer and carry out the "business" of our departments and colleges.

### PART I: Emphasis Areas

What should we focus on? The answer to this question was found in the departmental strategic plans that were shared during the "VP visits." University data and environmental scan data identifying trends and future opportunities for the Southeast and the nation were also studied. A consensus was reached by the Vice Presidents as to the emphasis areas that would provide a focus for change. These were shared with Clemson's Board of Trustees in July 2002.

While considering the emphasis areas, the Vice Presidents agreed that each emphasis area should include a majority of the following characteristics:

- Have a direct impact on economic and community development in keeping with Clemson's land grant mission.
- Leverage additional funding.
- Have potential for infusion into society or the marketplace (commercialization).
- Be characterized by academic excellence.
- Have a "champion."
- Provide competitive advantage.
- Exhibit potential for a critical mass of faculty and facilities.
- Cross disciplines to solve complex problems.
- Support basic research that nurtures new directions and technologies (strategic research).
- Address economic, social, and environmental objectives (public benefit research).
- Support "One Clemson."

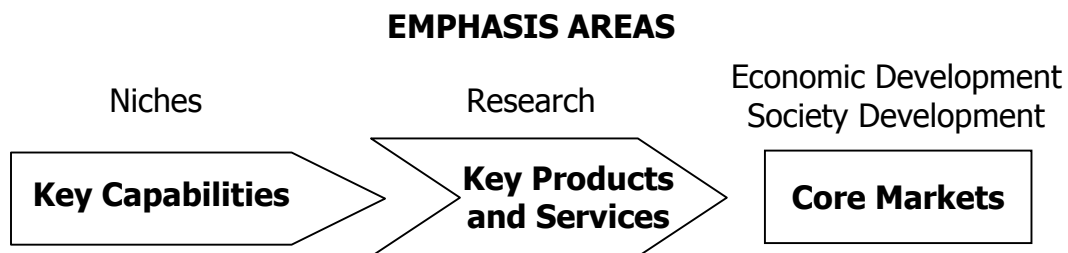
It was decided that each emphasis area should be managed by a team of Deans, Department Chairs, and PSA Goal Directors whose departments, programs, or individual faculty members express interest in that emphasis area. We are NOT going to develop another administrative layer. A faculty advisory panel will assist the management team in directing the activities of the areas. Each emphasis area will also be advised by a board of business and industry friends (to include at least one trustee). Collaborative search committees that include members of key departments, institutes, and programs will recruit new faculty. Most important, each emphasis area will be “**niche-based**” with dynamic additions and re-directions emanating from collaborative interactions.

The eight emphasis areas include:

**ADVANCED MATERIALS.  
AUTOMOTIVE AND TRANSPORTATION TECHNOLOGY  
BIOTECHNOLOGY AND BIOMEDICAL SCIENCES  
FAMILY AND COMMUNITY LIVING  
GENERAL EDUCATION  
INFORMATION AND COMMUNICATIONS TECHNOLOGY  
LEADERSHIP AND ENTREPRENEURSHIP  
SUSTAINABLE ENVIRONMENT**

Each area represents a broad-based platform for addressing questions that will continue to challenge us into the next century. The types of research and scholarship supported by each area—the “niches”—**will be defined by the faculty** and will change over time; even from year to year. Is it possible that an emphasis area will be eliminated? Yes, if productivity is low. Is it possible that new emphasis areas will emerge? Yes—to think otherwise would be foolish as well as unwise. The foundation we build must be dynamic and flexible, but strong.

During the fall semester, faculty, Deans, Chairs, and Directors interested in each emphasis area will assemble to determine the key capabilities of faculty and any expertise presently lacking but deemed necessary to advance research and scholarship in a particular programmatic area or “niche.” The “key products” or research expected as a result of the work of the faculty and staff in specific niche areas should be identified. These could be scholarly papers to share within the academy, specific products or patents, policies or knowledge of benefit to the public. As key “products” are identified, each should benefit a “core market” (destination)—and support both the educational and economic development of South Carolina. (See Figure 1.)



**Figure 1.**

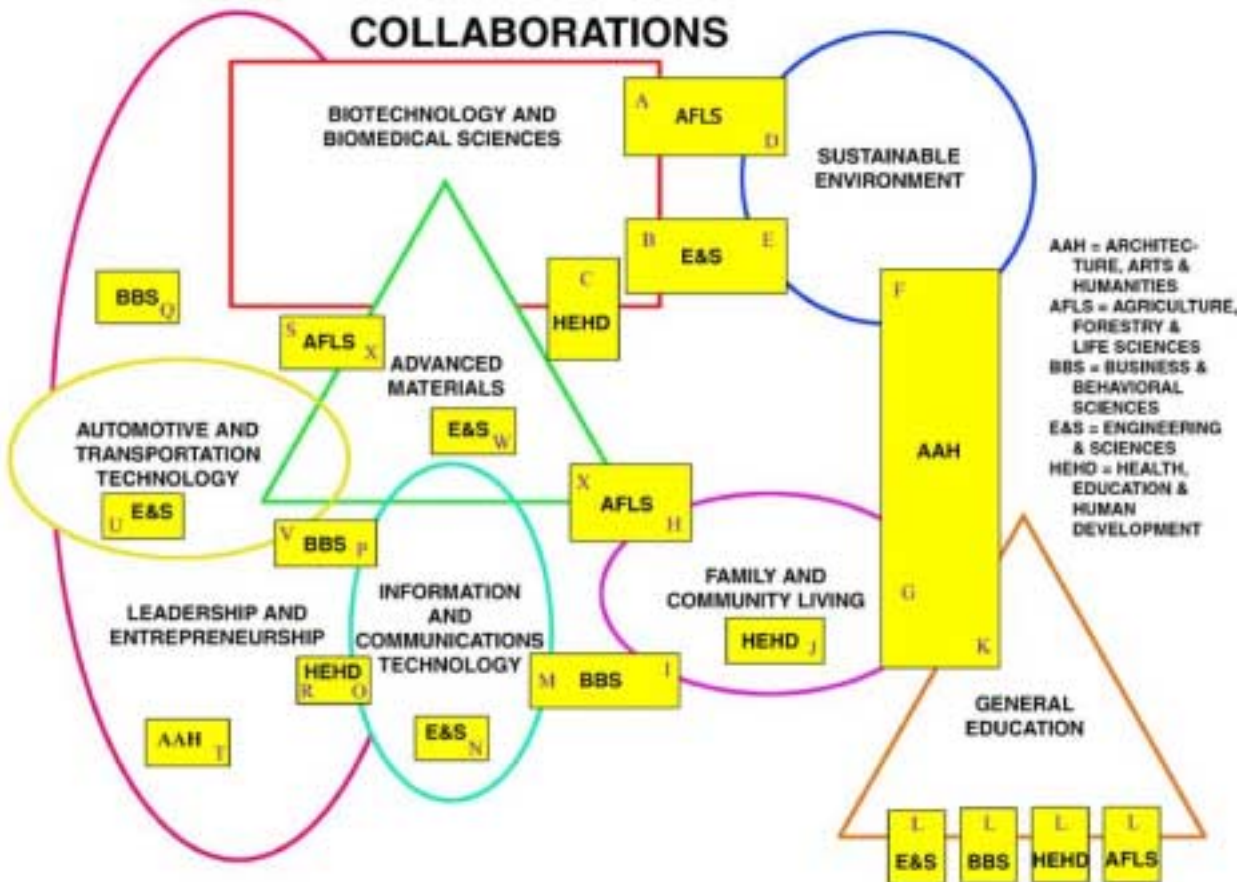
As emphasis areas develop cohesiveness, new hires will be added to assist in building a critical mass among faculty working in a niche area. New hires may come from Road Map funds or from reallocation of positions. Reallocations may take place from one department to another, or from one college to another. Table 1 indicates the number of expected reallocations as well as added endowed positions and new Roadmap positions through 2006. Only tenure-track positions are included. Once again, **this is only a projection**. As certain areas become more productive than others, this picture may change. You will note a large number of reallocations within the College of Agriculture, Forestry, and Life Sciences and from this college to other colleges. Recall that \$2.8 M was used to buy-out FTE's from the 2001 PSA budget so that no jobs would be lost in this area. As attrition occurs in the College of Agriculture, Forestry, and Life Sciences, some of these positions will be reallocated to other areas, provided such reallocation is not detrimental to *productive* programs and undergraduate/graduate education. The same is true for other colleges. In some cases, lapsed salary from reallocations may be used to enhance operating budgets since many departmental budgets are > 90% faculty salaries. Perhaps we might get by with fewer faculty if, by collaborating, we can avoid duplication of expertise among departments.

**Table 1. Reallocations—2006**

College	TERI/ RIP	Available for Reallocation	Reallocations Within College to Emphasis Areas	Reallocations External to College	Total Position Reallocations	New Positions Funded from Road Map	Endowed Positions	Emphasis Areas
AAH	20	15	+10	-5	10	2	3	Gen. Ed. Commun. Environ.
AFLS	63	33	+16	-17	16	7	3	Biomed. Environ.
BBS	10	5	+5	0	12 5 internal 7 external	7	5	Entrepren. Leadership Information
E&S	25	4	+4	0	18 4 internal 14 external	16	8	Adv. Mat. Environ. Automot. Informat. Biomed.
HEHD	17	8	+8	0	9 8 internal 1 external	2	3	Commun. Leadership Biotech.
Library	3	0	0	0	0	5	0	All areas
<b>Total</b>	<b>138</b>	<b>65</b>	<b>43</b>	<b>-22</b>	<b>65</b>	<b>39</b>	<b>22</b>	

Note that no emphasis area represents a single college or department. In Appendix I, you will find a list of the “top four” areas of focus identified by each department during the VP visits. These lists were used to identify possible relationships between departments and emphasis areas. (The lists may need to be modified—we may have made incorrect interpretations or misunderstood your message. THESE ARE NOT “SET IN STONE!”) Ask yourself how you as an individual, or group of individuals with whom you already collaborate, or even your entire department, relate to each emphasis area. We attempted to show *possible* relationships between colleges, departments, and emphasis areas by representing collaborations diagrammatically in

Figure 2. This figure is for heuristic purposes only! It simply shows that the emphasis areas afford opportunities for all colleges and departments. The letters in the boxes in Figure 2 refer to the lettered lists of departments in Appendix II. The lists indicate which departments in a particular college are represented by letters in the yellow college boxes that intersect with emphasis area and these can be added. There may be some departments that we failed to list for a particular emphasis area. Clemson's more than 90 centers and institutes are not yet included. This list will change as we meet to organize and the faculty bring clarity to the emphasis areas.



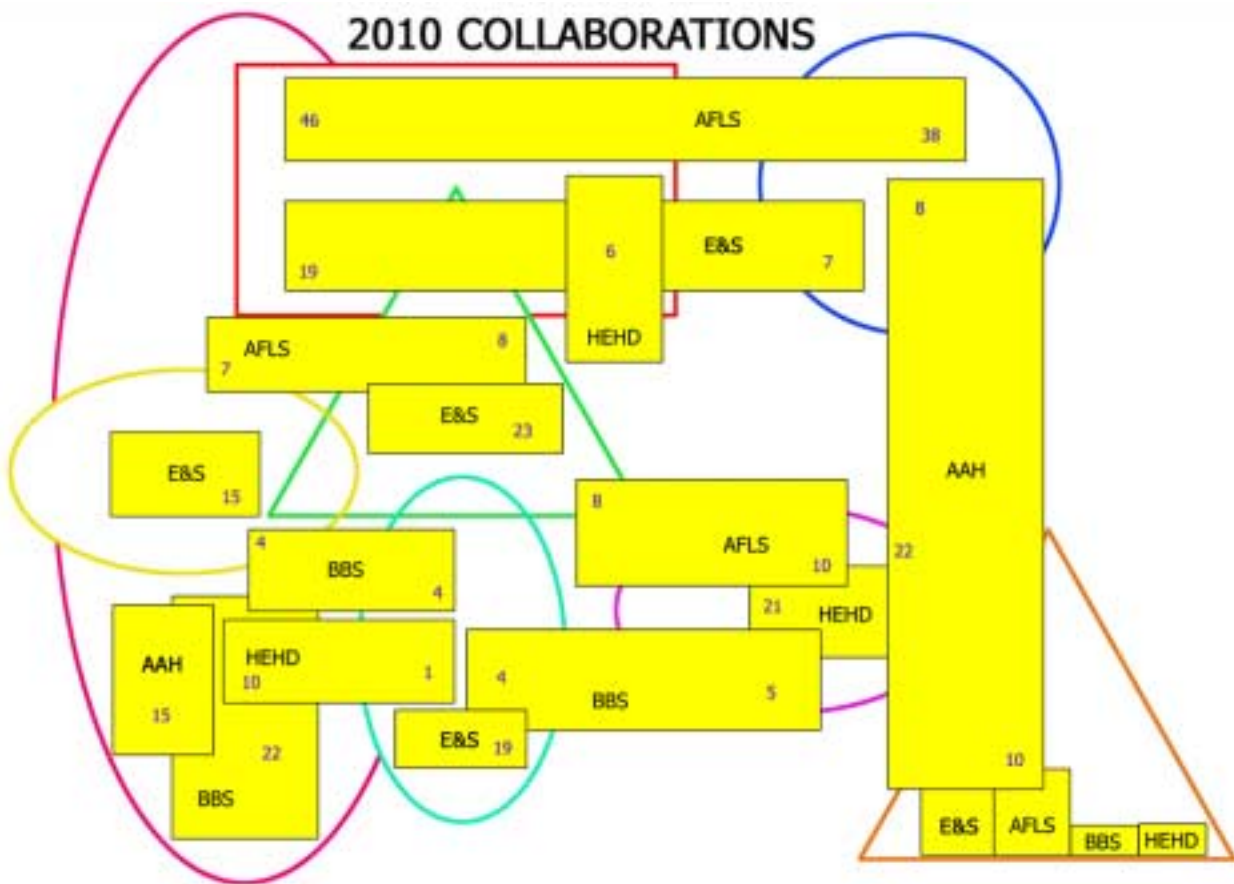
**Figure 2. 2006 Collaborations**

Table 2 shows that we could potentially channel the interests of an additional 320 of the 393 newly hired tenure track faculty to emphasis areas as we move toward 2010. This does not necessarily mean that positions will be lost from departments. Rather, more faculty hired by departments will have expertise and interests that build collaborative research venues in emphasis areas. This potential is reflected by the numbers in parentheses in the department lists in Appendix II. More faculty will find others with whom to collaborate. This is important because retaining faculty will become increasingly difficult during the next eight years. All universities will experience the same turnover in faculty that will be experienced by Clemson University. Faculty with research colleagues and cooperative research and teaching interests will be more likely to stay at Clemson because they are part of a team.

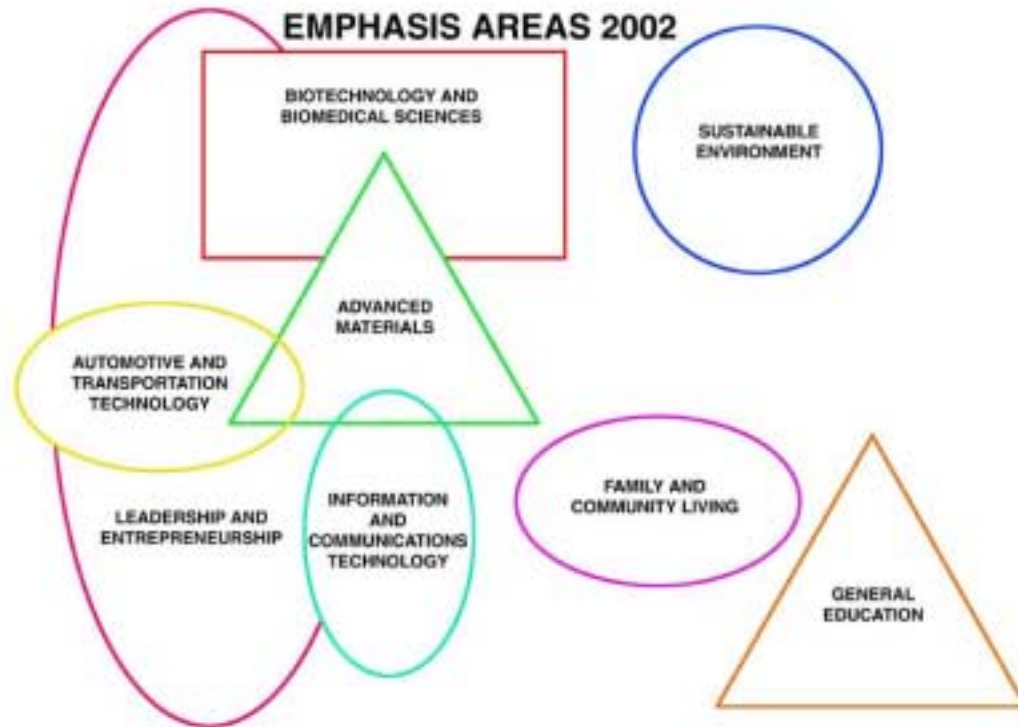
**Table 2. Potential Reallocations 2010**

College	Potential Reallocations		Reallocated Positions to Emphasis Areas							
	Faculty	Lecturers	Biotech. Biomed. Sciences	Sustainable Environment	Family & Commun. Living	General Education	Inform. & Commun. Technol.	Leadership & Entrepren.	Auto. & Transport. Technol.	Advanced Materials
<b>AAH</b>	74	36		8	22			15		
<b>AFLS</b>	119	11	46	38	10			7		8
<b>BBS</b>	47	16			5		4	22	4	
<b>E&amp;S</b>	105	1	19	7		10	19		15	23
<b>HEHD</b>	48	12	6		21		1	10		
<b>Total</b>	<b>393</b>	<b>76</b>	<b>71</b>	<b>53</b>	<b>58</b>	<b>10</b>	<b>24</b>	<b>54</b>	<b>19</b>	<b>31</b>

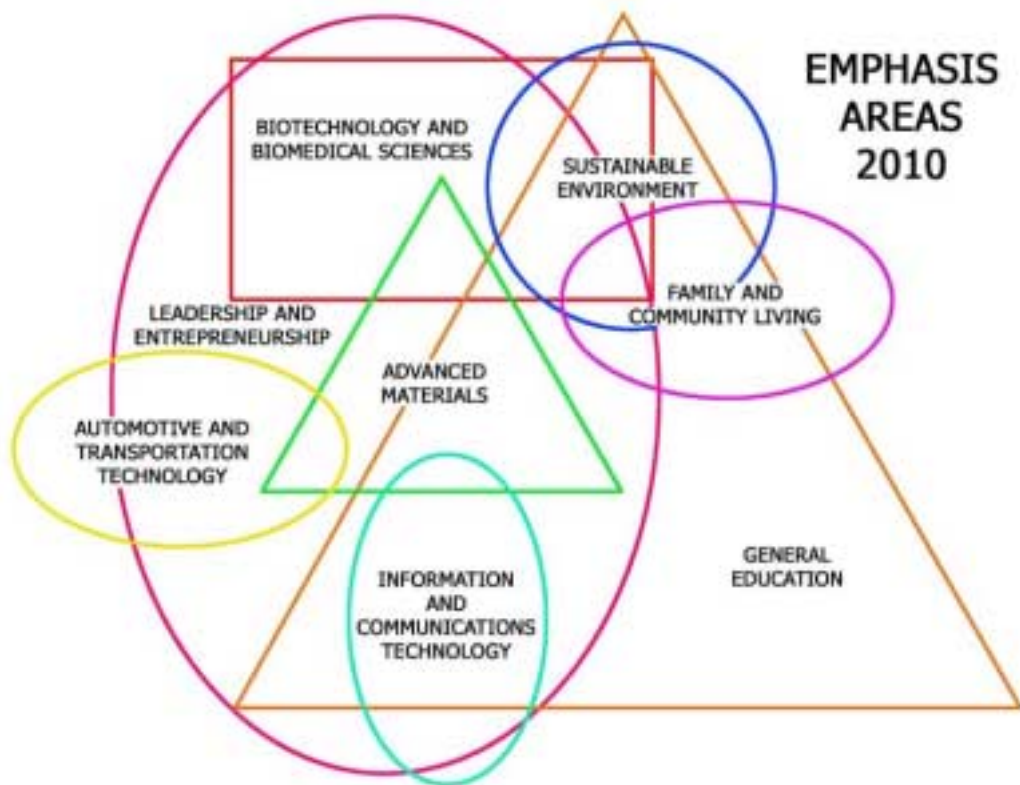
Eventually, the numbers of faculty working within emphasis areas will increase (Figure 3) and even the boundaries among emphasis areas will disappear.

**Figure 3. 2010 Collaborations**

Clemson University will move from a disconnected model (Figure 4) to an integrated model (Figure 5) as we become more highly focused and nationally recognized for the work of our faculty and staff.



**Figure 4. Emphasis areas 2002**



**Figure 5. Emphasis areas 2010**

Graduate students and post-doctoral fellows will be attracted and recruited to emphasis areas—a pattern seen in other major institutions with large graduate programs. More opportunities for support will be possible through multi-PI grants on collaborative projects. Collaborative working groups will also be able to provide more opportunities for undergraduates to engage in research and scholarly endeavors.

In addition, private giving opportunities will be organized to benefit faculty, staff, and students in emphasis areas or programs (niche areas) within the emphasis areas. Publications will showcase our teaching, research, and service efforts in each area and provide donors with an update on how their contributions have supported the work of faculty in each emphasis area.

## **PART II: Curriculum:**

The second part of our Academic Plan involves the curriculum. As we begin to recruit new faculty it is imperative that each department has a plan for hiring faculty to support its undergraduate and graduate teaching mission. In the 1980s as Clemson grew and expanded, departments added courses to justify adding more faculty. Most believed that larger departments had a better chance of surviving in a time of FTE and budget competition between colleges and departments. That time is over. Mass and quality are not directly proportional. We should not refill a faculty position just to have someone to teach a course if that course is no longer necessary. Perhaps some of the content, if necessary, could be included in other courses.

In order to “hire smart” as we replace 41% of our faculty, I am asking each department to conduct a zero-based curriculum study. Ask what you want your graduates to know and be able to do. In other words, what are the **learning outcomes** that define your discipline. *Map* your curriculum. By this I mean, ask what is taught in each course and how courses are linked together to make a curriculum. You may be surprised to find topics that are taught over and over again (not that such redundancy is bad—it may even be desirable IF you know it is occurring and it is planned).

The faculty should consider reducing the total number of hours in departmental curricula to 120-128 (128 has recently been recommended by NASULGC). Some departments already meet this goal. Others offer curricula of 137-140 hours. Many universities are currently engaging in this type of “downsizing” curriculum study. Department faculty should compare Clemson’s curriculum content to that of schools rated among the leading institutions in their discipline.

Students now take an average of 15.5 hours/semester. Students of the 1980s enrolled in 17-18 hours/semester, but they did not have to maintain a 3.0 GPR to retain a Life Scholarship. Most students and parents realize that enrolling in fewer hours offers a greater potential for good grades. Since students must take only 30 hours/year to qualify for the Life Scholarship ( $30 \times 4 = 120$ ), more than 120 hours results in an additional semester for most students, and semesters beyond the four years are not covered.

I know that examining the curriculum can be a contentious task. However, please be assured that we realize that curriculum structure and content are the purview of the faculty. The Academic Plan does not dictate curriculum, but suggests a “downsizing” in order to use our time

and resources more wisely. Also be assured that we are not downsizing just for its own sake. By downsizing the curriculum, faculty should be freed up to engage in research and scholarship and to teach differently. Many of us would like to spend more time mentoring students, conducting undergraduate research activities, directing honors theses, or teaching honors seminars, freshman seminars, and capstone experiences. Perhaps you are interested in engaging students in service learning projects or community service. Many faculty members might like to participate in study abroad experiences with students or share in a research exchange. More time is needed to direct student internships and cooperative assignments as well as to develop on-line courses. As long as we have curricula that demand as much as 137 hours of in-class coursework, other types of teaching and mentoring will be limited. We will never change the K-12 model of classroom teaching unless we offer a more student-centered curriculum.

Managing the teaching load as more faculty engage in additional research and scholarship endeavors and explore new ways to teach is a problem for many departments. Our scholarly publications have increased in number and our research awards have doubled. However, we have also left a lot of curriculum “on the table”—courses that are now taught every other semester or every other year. Complaints from parents are on the rise as the cost of college increases (only 40% of our students retain a Life Scholarship after the freshman year) and students cannot get courses necessary to graduate.

What about free electives? There are now 10 in all curricula. Should these be retained? How would this affect ROTC students (historically the reason for our elective hours). Could elective hours be replaced by pass/fail electives that are service based (in the tradition of a land grant university)? The faculty needs to explore these questions.

We must also look at General Education. The creative work of the General Education Task Force during the past two years resulted in thoughtful recommendations and new ideas about the content and delivery of General Education. I would like to thank the members of that committee for the countless hours they devoted to an in-depth discussion of General Education and suggest that their recommendations be considered carefully as we move forward.

We currently have 41 hours in each curriculum devoted to General Education with 367 courses “counting” in some way as part of the general education smorgasbord. The Southern Association of Colleges and Schools (SACS), in its new standards, does not require specific skills to be addressed but recommends a minimum of 30 General Education hours. I would like to see us develop a rich general education core based on specific learning outcomes (a future SACS requirement) identified by our faculty. The General Education curriculum should provide opportunities to globalize student perspectives and increase all students’ multicultural understandings. The General Education core could be augmented by capstone courses in disciplines. I would also like the faculty to consider having students develop an electronic portfolio (to be assessed in the junior year). This portfolio would provide evidence of skills and experiences (computer, oral, and written skills, ethical decision making ability, knowledge of other cultures, appreciation for the environment, etc.). Most important, students would have to reflect on what they learned at Clemson in order to provide evidence—explanations for why something is included in their portfolio. Potential employers would find portfolios an excellent way to get to know our students. Perhaps this should provide Clemson graduates with a competitive hiring advantage.

General Education courses could be taught, assessed, and revised by faculty whose research and scholarship is embedded in the teaching of a specific course or courses. The scholarship of teaching requires research—asking questions about student learning, experimenting with different ways of engaging students, assessing results, and forming alternative hypotheses to improve the learning experience. Faculty engaged in this important task should publish and share their findings and innovations with the academy. They should seek funding for new ventures. Faculty engaged in general education activities should develop teaching portfolios to augment our standard (and minimal) means of evaluating teaching.

Curriculum revision will not be a simple task. We will have to be mindful of revenue shifts as we continue to stabilize the size of the undergraduate population. Summer school will undoubtedly be affected if students no longer need to attend summer sessions in order to graduate on time. However, we have already seen shifts in summer school attendance as more students go home to work in order to pay higher tuition or attend technical colleges to take courses instead of enrolling at Clemson. On-line courses were full-full-full! Perhaps this is a glimpse of the future. What if internships, undergraduate research opportunities, study abroad expeditions, or service activities were a large part of summer school offerings? While challenging, these “what-ifs” need to be addressed if we want to teach differently and increase our time and opportunities for research and scholarship.

By “cleaning out our curriculum closet” we can assemble a palette of courses and experiences that create leaders, higher order thinkers, students who enjoy learning and know how to apply their knowledge to a variety of experiences in local environments as well as global and multicultural settings.

The graduate curriculum must also be examined to take advantage of emphasis areas while providing graduate students with a rich foundation on which to build their research and scholarship. Emphasis areas will provide a more diverse choice of mentors for students interested in a specific research area. Students working with a research team and interacting with business and industry leaders will have more opportunities for professional interactions. As Clemson becomes known for its strong collaborative programs in emphasis areas, recruiting should be facilitated and the choice of students more selective. Emphasis areas will provide focus for increasing private support for the fellowships necessary to attract high caliber graduate students. We will have to improve graduate services, including health benefits and professional development opportunities. Our recruiting and admissions procedures will also need streamlining if we are to double our graduate student numbers.

### **PART III: Evaluation and Rewards**

The third impetus for change—and third part of the Academic Plan—requires us to examine our rewards system. As faculty and staff reorient directions and activities, Clemson will have to reward change by setting new values for performance. A new evaluation system for faculty—and possibly staff—must be developed. The evaluation criteria must be goal oriented and correlated to the Academic Plan. Criteria must be *flexible* and the process must be fair. In the 1980s and 1990s, all faculty were expected to engage in teaching, research, and service—the “three-legged-stool.” It should be possible for a faculty member to emphasize only one of these activities—

what he or she is passionate about—and have this type of activity be appreciated by his or her peers. We have faculty who currently operate in this mode, but, in some cases, not all faculty work is valued or rewarded. No administrator can mandate this change—it is peer driven. Only the faculty members who serve on reappointment, tenure, promotion, and post-tenure review committees can change the rewards system. Faculty who collaborate are also often penalized for not working full time for the department. If we are to free ourselves to work in the interfaces between disciplines, then we will have to learn to evaluate and reward collaborative work. Any evaluation system must also provide impetus for growth and change—time to “retool” or partake of a sabbatical—as part of what is valued. This means that there must be a way to evaluate the products of such activities—in other words, the evaluation system must provide accountability. In addition, our evaluation system must provide a basis for meaningful performance rewards.

During our Department Chair’s retreat, Dr. Raoul Areola, a faculty evaluation consultant, introduced a system –both criteria and process—that could move us in this direction. Again *you*, the faculty, would own the process of modifying this system or developing your own consistent with a “university-wide template.”

### **Aligning Resources:**

In order to make the Academic Plan work within the University, we must identify the means to:

- Manage undergraduate enrollment and modify admissions procedures/criteria as emphasis areas change university-wide opportunities.
- Balance faculty resources with changing student demands.
- Increase retention and redistribute enrollments as necessary.
- Improve Life Scholarship retention.
- Increase library holdings and technical support.
- Increase information technology resources and technical support
- Increase space and prepare to support renovation needs as faculty change.
- Reduce the amount of deferred maintenance and improve older building spaces.
- Increase technical and administrative support for emphasis areas
- Increase staff support for technology transfer, patent applications, and the formation of start-up companies.

We must also consider developing a strategic plan for **Greenville** and other off-campus sites to serve non-traditional students. An academic plan that does not address this group of students is incomplete. While the number of 18 year olds will decrease during the next 20 years, the number of adult learners desiring to complete their education or change their careers will increase. The Vice Presidents and Deans are currently working on a design for this initiative.

### **Assessment:**

Finally, our Academic Plan must also include an assessment component that allows Clemson University to continually monitor its progress. We must use indicators that allow us to measure our performance and compare ourselves to other institutions. We must be creative but disciplined about our work. We must be smarter and not duplicate without reason what others have done.

We must avoid “playing to the numbers.” We must remain Clemson and not lose our sense of the Clemson experience, the community of the Clemson family, nor the meaning of One Clemson.

**Timeline:**

The suggested timeline for implementation of the Academic Plan is indicated below. This is a demanding schedule and may need to be modified as we move forward.

October 2002	Begin to organize emphasis areas.
October 2002	University committee begins study of General Education core.
January 2002	General Education core proposal reviewed by faculty.
January 2003	Appoint departmental committees to examine faculty evaluation system.
February 2003	Begin zero-based curriculum review.
March 2003	Initiate departmental visits to assess progress
May 2003	Approve new General Education core.
July 2003	Structuring of emphasis areas.
July 2003	Completed Advisory Boards appointed.
August 2003	Begin departmental curriculum revisions and approvals.
January 2004	Align department faculty evaluation systems with college system.
August 2004	Implement new curriculum.
January 2005	Implement new faculty evaluation system.

**Conclusion:**

This is your plan: *You* can decide the key capabilities and research niches that we will explore within the emphasis areas and how you will contribute. You can determine your curriculum. *You* can decide on the standards for evaluation of and by your peers.

All you have to do is be willing to embrace change. Change is challenging, but also can be exciting. Our work will continue for months and years—and actually will never completed. The Academic Plan will continue to evolve as faculty engage in the activities and wrestle with the problems/questions outlined above.

## APPENDIX I

<b>AAH</b>				
School of Architecture	International Design Health Care Design	Urban Design	Historic Preservation	Real Estate Development
Construction Science & Management	Construction/Industry Partnerships	MCSM Distance Degree		
Art	Graphic & Digital Design	Studio Art	Art History	
Planning & Landscape Architecture	Environmental Design	Community/Regional Planning	Historic Preservation	GIS/Sustainable Land Development
English	General Education	Professional Communications	Communication Across the Curriculum	Health Care Communication
Performing Arts	Production Technology	Performance/Outreach	Brooks Center Programs	
History	Southern Culture & Way of Life	General Education	Historic Preservation	
Philosophy & Religion	Ethics Across the Curriculum	Global Relations	General Education	
Communication Studies	General Education	Professional Communications	Communication Across the Curriculum	
Languages	Language/International Trade	Internationalizing Clemson University	Cultural Studies	General Education

<b>BBS</b>				
Accountancy	Public Accounting	Corporate Accounting		
Management	MIS (Management Information Systems)	Organizational/HRD Strategies	Production & Operations Management	
Economics	Microeconomics	Labor Economics	Trade	International Economics
MBA	International Business	Information Technology & E-commerce	Entrepreneurship	Management of Technology
Finance	International Finance	Financial Institutions - Markets	Corporate/Business Finance	Investments/Personal Financial Planning
Marketing	Services Marketing	Customer Creation & Retention	Policy Making in Marketing	Advertising/Sales
Graphic Communications	Industrial Collaborations	Printing/Color Management	Digital Operations	Films/Food Safety
Political Science	General Political Issues	International Politics, Economy	Public Administration/ International	Public Policy/ International Policy
Psychology	Human Factors	Industrial/Organizational Psychology	Human Performance Appraisal Enhancement	
Sociology	Community Issues	Anthropology		
Air Force ROTC	Leadership			
Army ROTC	Leadership			

<b>AFLS</b>				
Genetics & Biochemistry	Functional Genomics/ Plants	Proteomics	Biomedicine	Human Genetics
Biology Instruction	Introductory Biology Teaching	General Education	Secondary Science Education	Science Communications
Biological Sciences	Biodiversity	Biomedicine	Cell Biology	Genomics
Forest Resources	Forest & Natural Resource Management	Forest Water & Wetlands	Urban Forestry & Wildlife	Biodiversity in Managed Forests
Agriculture & Applied Economics	Environmental Conservation	Econ. & Community Development	Agric. Productivity & Profitability	
Agricultural & Biological Engineering	Bioprocessing/ Biomaterials	Water & Env. Resources Biofuels/Energy	Sustainable Precision Agriculture	Agricultural Education
Crop & Soil	Genetics/Genomics	Nutraceuticals; Crop	Weed Science	Turfgrass

Environmental Science	Plant Protection	Production/Management		
Animal & Veterinary Science	Biomedicine	Animal Reproduction Growth & Development	Nutrition/Gut Ecology	Biosecurity
Aquaculture, Fisheries & Wildlife	Partitioned Aquaculture Systems	Stress & Environmental Physiology	Applied Wildlife Management	
Entomology	Applied Agricultural Entomology	Arthropod Biodiversity	Urban Entomology	Plant Protection
Environmental Toxicology	Fate & Effects of Materials/Env. Chem.	Agriculture/Business Interface	Critical Habitats/Ecosystems	Human Environmental Interface
Experimental Statistics	Collaboration on Research Projects	Consult with Graduate Students & Faculty	Undergrad. & Graduate Course Offerings	Bioinformatics
Packaging Science	Smart Packaging for Food	Polymers/Films	International Industry Collaboration	
Food Science & Human Nutrition	Food Safety & Quality	Nutrition	Culinary Science	LINC
Horticulture	Vegetable and Medicinal Crops	Ornamental Horticulture	Fruit Rootstock and Genomics	Turfgrass
Plant Pathology & Physiology	Integrated Management of Diseases	Biocontrol of Disease	Environment	Medicinal Plants

<b>HEHD</b>				
Curriculum & Instruction	Teacher Preparation/Recertification	Reading/Literacy	Science & Mathematics	
Educational Leadership/Counseling	School District/State Leadership	School Counseling	Community Counseling	
Foundations of Special Education	Teacher Education	Teacher Recertification		
Technology & HRD	Human Resource Development	Industrial Technology	Communications Technology	
Parks, Recreation & Tourism	Tourism	Resource Management	Youth	Leisure: Retirement & Aging
School of Nursing	Chronic Illness Care	Rural & Community Health/International	High Risk Behaviors	Nursing Education
Public Health	Health Systems Management	Health Communications Lang. & Internat. Health	Women's Health	Epidemiology
Family & Youth Development	Youth Violence	Global Communities	Neighborhood & Family Life	

<b>E&amp;S</b>				
General Engineering	1 <sup>st</sup> Yr. Engr. Program/General Education	K-12 Science, Math. & Engineering	Youth Summer Programs	
Bioengineering	Cardiovascular Research	Tissue Engineering	Biomaterials/Biomechanics	Neuroscience/Bioelectronics
Chemical Engineering	Advanced Materials/Polymers	Kinetics/Catalysis	Separations Sep. Materials Synthesis	Thermodynamics & Supercritical Fluids
Civil Engineering	Natural Hazards Wind Engineering	Asphalt & Rubber Technology	Construction Management	
Electrical & Computer Engineering	Computer Systems Architecture/Robotics	Communications Wireless/Networks	Electronics—Semicond. Integrated Circuits	Systems—Mechatronics Power/Art. Intelligence
School of Environment	Environ. Processes Waste Management	Hydrogeology	Environmental Chemistry	Nuclear Environ. Engr. & Health Physics
Industrial Engineering	Information Technology	Human Factors & Ergonomics	Supply Chain Technology	Aviation Safety & Security
Mechanical Engineering	Mechatronics & Smart Systems	Automotive Research	Materials Design Methodology	Transportation
School of Mat. Sci. & Engineering	Adv. Electronics & Photonics	Ceramic & Organic Materials	Engineered Fiber & Textile Materials	Biomimetics
Chemistry	Adv. Materials/Biomedicine	Polymer Chemistry	Chemical Physics	Chemical Education
Computer Science	Bioinformatics	Graphics, Visualization Virtual Reality	Software Engineering Database Networks	Algorithms—Graph Theory/Human Factors/Special Effects
Mathematical Science	Mathematical Modeling	Cryptography & Coding Theory	Optimization	General Education
Physics & Astronomy	Biophysics	Nanoscience Condensed Matter	Atmospheric & Space Physics	Astronomy/Astrophysics

## **APPENDIX II—REALLOCATION 2010**

As new faculty are hired, the **potential** exists for faculty to align their interests with emphasis areas. The numbers in parentheses following each department indicate the number of reallocated faculty positions that might be aligned with the indicated emphasis areas. The total number for each college is represented in the yellow boxes in Figure 3. The total for each emphasis area is indicated in Table 2.

### **Biotechnology and Biomedical Sciences (total 71)**

#### **A. AFLS (total 46)**

Genetics & Biochemistry (2)  
Biological Sciences (10)  
Environmental Toxicology (1)  
Horticulture (4)  
Crops & Soils (12)  
Plant Pathology & Physiology (5)  
Animal & Veterinary Science (8)  
Entomology (4)

#### **B. E&S (total 19)**

Bioengineering (1)  
Chemistry (2)  
Physics & Astronomy (4)  
School of Environment (4)  
School of Material Science & Engineering (5)  
Computer Science (3)

#### **C. HEHD (total 6)**

School of Nursing (6)

### **Sustainable Environment (total 53)**

#### **D. AFLS (total 38)**

Biological Sciences (7)  
Agricultural & Biological Engineering (7)  
Entomology (4)  
Environmental Toxicology (5)  
Forest Resources (15)

#### **E. E&S (total 7)**

School of the Environment (7)

#### **F. HEHD (total 8)**

Landscape Architecture (8)

**Family and Community Living (total 58)****G. AAH (total 22)**

School of Architecture (7)  
 Planning & Landscape Architecture (2)  
 English (3)  
 Performing Arts (3)  
 History (4)  
 Languages (3)

**H. AFLS (total 10)**

Forest Resources (3)  
 Agriculture & Applied Economics (7)

**I. BBS (total 5)**

Psychology (1)  
 Sociology (4)

**J. HEHD (total 21)**

Parks, Recreation & Tourism Management (8)  
 Public Health (2)  
 School of Nursing (7)  
 Educational Leadership/Counseling (1)  
 Family & Youth Development (3)

**General Education (total 10)****K. AAH**

History  
 English  
 Languages  
 Communication Studies  
 Philosophy & Religion  
 Art  
 Performing Arts

**L. E&S**

Mathematical Sciences  
 Computer Science  
 Chemistry  
 General Engineering

**BBS**

Political Science  
 Psychology  
 Sociology

**AFLS**

Biology Instruction

**Information and Communications Technology (total 24)****M. BBS (total 3)**

Management (2)

Graphic Communication (1)

**N. E&S (total 16)**

Electrical &amp; Computer Engineering (8)

Computer Science (7)

Industrial Engineering (1)

**O. HEHD (total 1)**

Technology &amp; Human Resource Development (1)

**P. BBS (total 4)**

Management

Graphic Communication

**Leadership and Entrepreneurship (total 54)****Q. BBS (total 22)**

Economics (6)

Management (3)

Marketing (3)

Accountancy (4)

Psychology (3)

Finance (2)

MBA (1)

**R. HEHD (total 10)**

Technology &amp; Human Resources Development (2)

Educational Leadership &amp; Counseling (5)

Family &amp; Neighborhood Life (3)

**S. AFLS (total 7)**

Agriculture &amp; Applied Economics (7)

**T. AAH (total 15)**

Construction Management (3)

English (3)

Communication Studies (2)

Languages (3)

Philosophy &amp; Religion (4)

**Automotive and Transportation Technology (total 19)**

**U. E&S (total 15)**

- Mechanical Engineering (4)
- Electrical & Computer Engineering (4)
- Civil Engineering (6)
- Industrial Engineering (1)

**V. BBS (total 4)**

- Management (2)
- Marketing (2)

**Advanced Materials (total 31)**

**W. E&S (total 23)**

- School of Material Science & Engineering (8)
- Chemistry (4)
- Physics & Astronomy (3)
- Mechanical Engineering (3)
- Bioengineering
- Chemical Engineering (5)

**X. AFLS (total 8)**

- Packaging Science (4)
- Food Science & Nutrition (4)