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February 3, 2000

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MEMORANDUM

To: Mr. R. Austin Gilbert, Jr., Chairman, and Members,
Commission on Higher Education

From: Ms. Dianne Chinnes, Chairman, *DC/gmr*
Committee on Academic Affairs and Licensing

**Consideration of Follow-Up Report to CHE Consultants' Evaluation
of Existing Programs in Life Sciences (FY 1997-98)**

Background

At its meeting on October 14, 1998, the Committee on Academic Affairs approved the CHE Consultants' Evaluation of Existing Programs in Life Sciences. The report represented the findings of a team of six external consultants who reviewed during FY 1997-98 52 existing programs in Life Sciences. The consultants visited all twelve senior institutions.

The Commission's purposes in conducting these evaluations are:

- 1) to ensure that postsecondary opportunities of high quality are available to State residents and that the State's resources are used wisely in promotion of that end;
- 2) to improve educational effectiveness and strategic planning at the State level;
- 3) to guide the Commission and the public institutions in making decisions to continue or recommend discontinuation of existing programs and in considering requests for new programs; and

- 4) to assist the Commission and the public institutions in strengthening programs to ensure that public higher education in South Carolina remains vigorous, dynamic, and capable of renewal.

This report provides a summary of the actions taken by three institutions with respect to various programs that were cited in the evaluation report as needing improvement and were granted Provisional rather than Full Approval. The following recommendations for Clemson University, the Medical University of South Carolina, and Winthrop University were approved by the Commission on November 5, 1998.

Clemson University	M.S./Ph.D. Nutritional Sciences	Provisional Approval
	M.S./Ph.D. Biochemistry	Provisional Approval
	B.S. Entomology	Termination
	M.S./Ph.D. Environmental Toxicology	Provisional Approval
	M.S. Botany	Provisional Approval
	B.S. Plant Pathology	Provisional Approval
	M.S./Ph.D. Plant Pathology	Provisional Approval
Medical University of South Carolina	Ph.D. Experimental Pathology and Laboratory Medicine	Provisional Approval
	Ph.D. Physiology	Provisional Approval
	M.S. Biology	Provisional Approval
Winthrop University	M.S. Biology	Provisional Approval

□ *Clemson University* Clemson was requested to conduct an internal analysis of the programs recommend for provisional and termination status. In particular, the institution was to determine the role of its plant science programs in light of its land-grant mission. How are these programs to fit into the institution's movement toward a highly technical approach to these disciplines as evidenced by the new Genomics Institute and Plant Biotechnology Building? A more unified and consolidated approach to these programs was repeated as a theme throughout the consultants' evaluation. The Commission requested that the institution provide an update on how it will pursue enhancement of these programs and their integration into the new technology venues.

□ *Medical University of South Carolina* MUSC was asked to explore the possibility of making available its ethics in science courses to other life science programs with the State through distance education. The Ph.D. program in Experimental Pathology and Laboratory Medicine was cited for low enrollment and for the need for a permanent department head, despite the fact that this program is considered to be an essential component of all medical schools. MUSC was urged to consider consolidating the

Pathology program with Molecular and Cellular Biology and Pathology or with Microbiology and Immunology.

The consultants recommended that the Ph.D. program in Physiology begin to recruit four or five new faculty as well as hire a permanent department head. The department head was to be someone who could lead the program to focus on neuroscience and cell and molecular biology. MUSC was urged to consider consolidating the program with a related program such as biochemistry, pharmacology, or molecular and cellular biology.

The Commission has not yet received MUSC's report regarding its response to recommendations for the Ph.D., Experimental Pathology and Laboratory Medicine. The Committee will consider that report at its April 2000 meeting.

□ *Winthrop University* The consultants recommended that Winthrop's M.S. program in Biology be re-organized with additional resources provided to support the program. If additional resources were not forthcoming, then the consultants indicated that what resources were available for this graduate program should be shifted to support only an undergraduate program. The physical facilities, equipment, and faculty were viewed as stretched beyond capacity. Faculty were also not given workload credit for graduate education and graduate stipends were considered to be too low.

Summary of Institutional Responses

□ *Clemson University*

The report provided to the Commission by Clemson University indicates that the institution has been examining how its numerous life science programs relate to one another, to new high-tech approaches, and to its land-grant mission. As a result of this analysis, Clemson University's Board of Trustees voted to terminate the programs leading to B.S. degrees in Entomology and Plant Pathology. The University currently has students enrolled in the Entomology program who will complete the program by Spring 2003. No new admissions to the program will be allowed after Fall 1999. However, because of their importance in a land-grant institution, sophomore and senior-level courses will continue to be offered to other majors in the College of Agriculture, Forestry, and Life Sciences.

Although the Plant Pathology program was recommended by the CHE consultant for provisional approval, the institution has also terminated this undergraduate degree. No new students will be admitted to the program after Fall 1999, and students currently in the program will complete the degree by Spring 2002. Some of the courses for this

major will be incorporated into other undergraduate plant-based courses offered in the College of Agriculture, Forestry, and Life Sciences.

At the time of the CHE consultants' review, the Department of Environmental Toxicology was in a state of major flux. The department had lost nine of ten faculty as a result of a dispute with the department chair and the 30 graduate students in the M.S. and Ph.D. programs were without faculty advisors. Since the review, Clemson has hired eight new tenure-track faculty and three research faculty to serve the M.S. and Ph.D. programs. The 30 graduate students completed their degrees by working with faculty throughout the university. The department currently has 20 M.S. degree-seeking students and 15 Ph.D. degree-seeking students. The new faculty have obtained \$1.1 million in extramural funding and have more than \$5 million in pending grants. The new chair has operated the department within its budget. Clemson has purchased the environmental toxicology building and will now allow the department to hire individuals into grant-funded temporary positions. The institution is requesting Full Approval for the program.

The programs leading to the M.S. and Ph.D. degrees in Nutritional Sciences are interdisciplinary degrees that do not have a home department. The programs are housed in the College of Agriculture, Forestry, and Life Sciences, which has identified nutrition, food safety, and food quality as priority areas. To address the priority status, one new faculty member has been hired in food science, and an offer has been made to a second candidate for another new position. The University is currently conducting a search to hire a new chair for the Department of Food Science and Human Nutrition. To enhance the program, more than \$100,000 in equipment and laboratory upgrades have occurred.

The consultants recommended that the Nutritional Sciences programs need to be reconfigured. Clemson indicates in its response that these degrees are strongly connected with the degree offerings in Food Technology, Animal Physiology, and Animal and Food Industries. Changes in Nutritional Sciences will thus affect the offerings in these other programs. Because of this interconnection, faculty are still reviewing the program and developing revisions. The institution requests a six-month extension of the provisional status in order to complete the revision process.

Clemson University proposes to establish a new department that will house the biochemistry and genetics programs. Currently, the only faculty who participate in the biochemistry program come from the Department of Biological Sciences. By creating a new department, the institution indicates that it will be able to consolidate the biochemistry and genetics programs, have faculty from related disciplines involved in these programs, and will facilitate faculty access to a wider array of research equipment, particularly in the new Genomics Institute and Plant Biotechnology Building. Combining these programs under one umbrella will also address CHE productivity standards as well as increase the critical mass of faculty supporting these programs. The institution requests a six-month extension of the provisional status in order to complete the revision process.

Program revision is also underway for the programs leading to the M.S. and Ph.D. degrees in Plant Pathology and for the program leading to the M.S. degree in Botany. In order to undertake this revision, the institution has had to evaluate related programs in the plant science field not included in the Commission review. Curriculum changes in Plant Pathology and Botany will affect other degree programs in plant sciences and entomology. Although the revision process is still occurring, Clemson proposes the following changes to the master-level programs:

Current Programs	Proposed Changes
M.S. Botany	M.S. Entomology
M.S. Crop & Soil Environ. Science	M.A. Plant Sciences (non-thesis)
M.S. Entomology	M.S. Plant Sciences (thesis)
M.S. Horticulture	
M.S. Plant Pathology	
M.Ag. Multi-Department	

Clemson requests a six-month extension of the provisional status in order to complete the revision process.

☐ *Medical University of South Carolina*

The consultants requested that MUSC explore the possibility of offering its Ethics course throughout the State via distance education. MUSC contacted Clemson and USC and these institutions have since developed ethics courses appropriate for their programs. The S.C. Council of Graduate Deans has also been contacted and none of the institutions wish to have the course delivered to their campus. Since the time of the Life Sciences review, Federal requirements for such training have been strengthened and most institutions have developed their own courses as a result of these changes.

The program leading to the Ph.D. degree in Physiology has implemented several of the recommendations of the CHE consultants. A department chair, with extensive experience, has been hired as well as six new faculty members. The amount of extramural funding has increased from \$30,240 to more than \$1 million. Pending funding support will bring the total to over \$3 million. The department has been renamed the Department of Physiology and Neuroscience and has greatly expanded its research and educational programs. Thirteen graduate students are enrolled in the department's programs. In addition, the department is advertising for four additional faculty to be hired in the coming year. The institution has been supportive in making the changes recommended by the CHE consultants to strengthen the Ph.D. program. The hiring of a permanent

department chair, after having an interim chair for eleven years, will continue to bring vitality to the program.

The program leading to the Ph.D. degree in Experimental Pathology and Laboratory Medicine will be considered at a later date.

Winthrop University

The review of the program leading to the M.S. degree in Biology focused on three main areas of concern: space and equipment, faculty resources, and support for graduate students. Since the review visit, Winthrop has opened its new 65,000 square foot Life Sciences Building. In addition, the Sims Sciences Building is scheduled for renovation in 2000-01. With these two buildings dedicated to the Life and Physical Sciences, there will be appropriate and ample laboratory, lecture, and office space. The Department of Biology has been allocated over \$700,000 for scientific equipment. These funds are part of a special appropriation from the General Assembly (\$1,775,000) for special equipment needs at Winthrop. In response to another concern about faculty resources, faculty are now given workload credit for students enrolled in independent study. This credit can be used to "purchase" blocks of release time for faculty. The institution is continuing to examine additional ways to address the teaching load of graduate faculty. The department has added one full-time faculty member and 1.9 FTE part-time faculty to ease the excessive faculty load noted by the CHE consultants.

Winthrop has addressed the concerns regarding support for graduate students through the space allocation in the new Life Sciences Building. The building provides numerous office/study areas as well as research laboratory space for graduate students. The stipend level remains the same for biology graduate students because it is the level set by the institution for all graduate students, and it is thus out of the control of the department. However, this issue is under discussion by the administration. The CHE consultants raised another concern regarding the availability of graduate-level courses. Class schedule rotations provided by the institution indicate that courses are offered at intervals that would allow a student to complete the program within two years. In summary, the new building, equipment, and supplies along with the addition of faculty demonstrates that the institution has provided the required support to enhance the graduate program in biology in substantive ways.

Recommendations

1. The Committee on Academic Affairs and Licensing recommends that the Commission grant full program approval to the following programs:

- Clemson University M.S./Ph.D., Environmental Toxicology

Medical University of South Carolina Ph.D., Physiology
Winthrop University M.S., Biology

2. The Committee recommends that the Commission grant Clemson University's request for a six-month continuation of provisional status for the following programs with the stipulation that Clemson provide to the Commission by March 1, 2000, a report on the programmatic revisions for the following programs:

Clemson University M.S./Ph.D., Nutritional Sciences
 M.S./Ph.D., Biochemistry
 M.S./Ph.D., Plant Pathology
 M.S., Botany

3. The Committee recommends that the Commission endorse the decision of Clemson to terminate the following programs in response to the Life Sciences review:

B.S., Entomology
B.S., Plant Pathology

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