

Recommendations of the Review Panel
on Cutting Edge Grants for Research
to the Public Senior Colleges
FY 1990-91

The panel to review Cutting Edge research grant proposals at public senior colleges for FY 1990-91 met in Columbia on April 10, 1990. Members of the panel, all chosen for their expertise and experience in similar programs are:

Dr. Roy Carroll
Vice President for Planning
University of North Carolina
General Administration

Dr. Margaret Miller
Assistant Director of Academic Affairs
State Council for Higher Education in Virginia

Dr. Charles Pickett
Assistant Commissioner for Academic Affairs
Board of Trustees, Mississippi Institutions
of Higher Learning

Dr. Wimberly Royster
Vice President for Research and Graduate Studies
University of Kentucky

The following report was prepared by Commission staff for the review panel, in accord with their instructions.

Prior to meeting here, each member of the panel individually analyzed and rated each of the 19 proposals which were submitted by seven institutions. These individual ratings served as a starting point for the panel's discussions on April 10.

The panel understands that the Cutting Edge funds for FY 1990-91 have not yet been appropriated. Since the amount to be allocated to these grants has not yet been determined by the Commission, the panel has ranked 13 of the proposals in order of the panel's judgement on the relative merit of each. The panel recommends that these 13 merit approval, subject to the availability of funds as may be determined by the Commission. The panel found some merit in each of the remaining proposals, but believes that additional development and information is required for each, and does not recommend that any of these remaining six be approved.

The recommended proposals, in priority order, are listed on the next page.

Ranking by Review Panel
Research Grant Proposals, FY 1990-91

Rank	Title	Institution	Funds Requested FY 90-91	Cumulative Funds Requested (thousands)
1.	*Cellular Basis of Inflammation in Crayfish	Francis Marion	\$ 27,924	-
2.	*Positive Feedback Between Intertidal Filter Feeders & Estuarine Plankton	USC-Coastal	42,982	\$ 70.9
3.	*Psychobiological Predictors of Cardiac Rehabilitation	USC-Coastal	34,899	105.8
4.	*Construction & Evaluation of Holographic Fourier Transform Spectrometers	The Citadel/ Coll. Charls.	79,727	185.5
5.	*Late Quaternary Evolution of the Inner Continental Shelf & Coastal Zone of S.C.	USC-Coastal	64,193	249.7
6.	*Estuarine Adaptations & the Ecological Role of Wading Birds in S.C. Coastal Ecosystem	Winthrop	42,284	292.0
7.	*Teenage Parents Educational & Occupational Aspirations	S.C. State	56,832	348.8
8.	*College Level Essay Analysis & Rating Project (CLEAR)	USC-Coastal/ USC-Aiken	60,910	409.7
9.	Effects of Hurricane HUGO on the Sedimentology Along the Central SC Coast	Coll. Charls.	75,962	485.7
10.	Local Government Administration in SC: The State of the Profes.	Coll. Charls.	58,280	543.9
11.	Chemical Undergraduate Research Training to Improve Native Grads	Coll. Charls.	75,080	613.0
12.	Historical Data to Model Contemporary Pollution Legislation for SC	Francis Marion	49,415	668.4
13.	Infant Mortality Reduction in SC: Viable Policies & Programs	Winthrop	69,087	737.5
* Continuation Projects				

Summary

Each of the ranked proposals is listed in the following section. Each summary includes an abstract of the project followed by consultants' comments about each.

1. Francis Marion College, "Cellular Basis of Inflammation in the Crayfish."

The study uses crayfish to determine the ratio of fixed vs. circulating cells and humoral factors in the recognition of protein, viruses, bacteria, and red blood cells. This project was approved for initial funding in FY 1988-89, received continuation funding in FY 1989-90, and funding is being requested for the final year of the three year project.

The project is well-conceived and is making satisfactory progress to date. The project continues to have a great deal of potential for a positive impact on the economic development of the State. The PI is very capable. The project continues to utilize undergraduates and generates knowledge useful to other investigators. Additional support for the project has been sought and acquired. In addition, Francis Marion provides strong institutional commitment to the project.

2. USC-Coastal, "Positive Feedback Between Intertidal Filter Feeders & Estuarine Plankton."

Oyster beds remove large amounts of plankton and particulate materials from tidal creek waters, and release ammonium. This project tests the hypothesis that the ammonium represents a significant source of nitrogen for tidal creek plankton, resulting in a positive feedback loop between the oysters and the plankton. This project was approved for initial funding in FY 1988-89, received continuation funding in FY 1989-90, and funding is being requested for the final year of the three year project.

The project involves significant research on the ecosystem of the coastal wetlands. Project results have the potential for a significant impact on the economic development of the State. The project is well-conceived and substantial progress has already been made towards completion of the project. The PI has considerable strength in the area. The project involves undergraduate students and has institutional support.

3. USC-Coastal, "Psychobiological Predictors of Cardiac Rehabilitation."

The purpose of this project is to identify psychobiological factors predicative of noncompliance and compliance with guidelines set forth in cardiac rehabilitation programs. This project was approved for initial funding in FY 1988-89, received continuation funding in FY 1989-90, and funding is being requested for the final year of the three year project.

The project has clear goals and objectives and progress appears to have been made in meeting those goals and objectives during the project's first year. The progress report is clear and to the point. Cooperative arrangements have been made with area hospitals and physicians. Outside funding has been sought and the NIH has given the program high marks. Student involvement is significant. However, the plan of activities for next year is less clearly described than is desirable.

4. The Citadel & College of Charleston, "Construction & Evaluation of Holographic Fourier Transform Spectrometers."

The purpose of the project is to develop, construct, and evaluate Holographic Fourier Transform Spectrometers. This project was approved for initial funding in FY 1988-89, received continuation funding in FY 1989-90, and funding is being requested for the final year of the three year project.

The goals of this project, if realized, have significant positive implications for research and industry in the State. The research team has made relatively good progress in meeting the research objectives. The project involves, on a limited basis, undergraduate and graduate students who are receiving excellent hands-on research experience. However, equipment funding should be phased out.

5. USC-Coastal, "Late Quaternary Evolution of the Inner Continental Shelf & Coastal Zone of South Carolina: Climatic & Relative Sea Level Changes."

The project incorporates a sedimentologic, geophysical, and paleoenologic study of the coastal zone and inner continental shelf of South Carolina. Such a study would provide a foundation for studies of the history and development of the coastal zone and document changes in climate and relative sea level with the zone. This project was approved for initial funding in FY 1989-90, and funding is being requested for the second of a projected three years.

The project is well-designed and adds a valuable dimension to the marine science program at USC-Coastal. The project has stimulated other research projects and funding. Institutional strength in the field is good and institutional support for the project is apparent. Utilization and involvement of students is excellent. However, the project offers no immediate benefits for the State.

6. Winthrop College, "Estuarine Adaptations & the Ecological Role of Wading Birds in S.C. Coastal Ecosystems."

The research project is designed to examine fluctuations in the distribution and abundance of wading birds in South Carolina coastal zones as well as to determine the role these species play in nutrient processing and in enhancing food productivity in these important nursery grounds for shell and fin fish. This project was approved for initial funding in FY 1989-90, and funding is being requested for the final year of the two year project.

The proposal is well-written and is an extension of the previous year's proposal. The PI's credentials are strong and institutional support is apparent. The project provides field research opportunities for a number of students and is interdisciplinary in that it involves two academic departments. The economic impact of the project will not be felt for many years, if at all.

7. South Carolina State College, "Teenage Parents Educational & Occupational Aspirations & Preparation."

The purpose of the project is to identify critical variables related to educational and occupational aspirations and preparation that will encourage teenage mothers to continue their education and become self-sufficient members of society. This project was approved for initial funding in FY 1988-89, received continuation funding in FY 1989-90, and funding is being requested for the final year of the three year project.

This project addresses an important social issue. Progress has been made in completing project goals and objectives. Student involvement in the project is good and institutional support is provided. However, a dissemination plan needs to be developed. The size of the travel budget is not supported, nor is the role of the research associate clear.

8. University of South Carolina-Aiken/University of South Carolina-Coastal, "College Level Essay Analysis and Rating Project (CLEAR)."

The purpose of the project is to establish procedures and programs designed to foster and then measure student achievement in writing. This project was approved for initial funding in FY 1988-89, received continuation funding in FY 1989-90, and funding is being requested for the final year of the three year project.

A project with the potential for wide applicability and usefulness. Substantial progress has been made to date. The project involves a variety of state agencies, including 12th grade teachers. It is unclear from the proposal what activities will occur during the third year of the project. Important information is missing from the proposal, including vital and institutional resource commitments. Other than as research subjects, students are not involved in the project.

9. College of Charleston, "Effects of Hurricane Hugo on the Bathymetry & Sedimentology Along the Central South Carolina Coast."

The project is concerned with mapping the erosion of South Carolina's beaches and sand dunes as a result of Hurricane Hugo. The project addresses the question of where the sand went and at what rate it will return to replenish the State's beaches.

This is a timely issue of both scientific and economic utility. The researchers have good records of performance in the area of sedimentary geology. Institutional support is evidenced through equipment and faculty release time. Weaknesses associated with the project include high expenses and an overly ambitious research plan. The project budget needs to be provided by year with a priority ranking in terms of staffing and equipment.

10. College of Charleston, "Local Government Administration in South Carolina."

The project is designed to examine the role of local government administrators within their communities from the perspective of personal leadership styles, roles and qualities, knowledge bases, and along the more traditional structural/institutional lines.

The proposal is well-developed and is focused on an important area of concern. The project is affiliated with an existing Institute and MPA program. The investigators are capable professionals with previous research experience in the area of local government administration. The proposal is not clear as to how students will be involved in the project.

11. College of Charleston, "Chemical Undergraduate Research Training to Improve Native Graduates & Foster Economic Development Gained by Education."

The purpose of this project is to improve the experience of undergraduate students by providing an opportunity to participate in summer research programs with mentors from the chemistry and biochemistry faculty.

The proposed project could have a significant impact on science education in the State. However, the project will have a limited economic impact on the State. The proposed project is a collection of faculty research activities, not a cohesive research project. Faculty qualifications are strong in some areas, but weak in others.

12. Francis Marion College, "Historical Data to Model Contemporary Pollution Legislation for South Carolina."

The purpose of this project is to utilize historical data to create model pollution legislation. Included in the model will be political, economic and social variables. The proposed use of the model will be the development of legislation that promotes the optimum level of environmental safety, while balancing the needs of industry.

The proposed project is concerned with a significant issue and uses an interdisciplinary approach. Faculty associated with the project have limited experience; no biologist has been included. Other weaknesses include limited student involvement and no evidence of a dissemination plan of project results to policy-makers.

13. Winthrop College, "Infant Mortality Reduction in South Carolina: Viable Policies and Programs."

The purpose of this project is to identify strategies and policies at the local administrative level (counties) which will "dampen" potentially high levels of infant mortality.

The proposed project deals with a timely health issue. The project methodology is unclear, only indirect student involvement is apparent, no information is presented regarding project faculty other than the PI, and no evidence exists that other relevant agencies have been contacted for advice or support.

While the panel does not recommend that any of the remaining six proposals be approved, summaries similar to those provided above follow for these six, for completeness' sake.

College of Charleston, "Franchising as an Economic Development Tool for South Carolina."

The purpose of the project is to investigate the factors of franchising, both positive and negative, that contribute to the widespread success of franchising. This project was approved for initial funding in FY 1989-90, and funding is being requested for the final year of the project.

The proposal provides no information concerning the status of activities undertaken during the project's first year of implementation. Limited student involvement is incorporated in the project with much of the involvement being clerical. The proposed budget is inflated, with an excessive travel allowance. Finally, very little information is provided regarding the methods of data collection and analysis.

Francis Marion College, "Quantum Beat Spectroscopy of Chemical Intermediates in a Supersonic Free Jet Expansion."

The project is designed to study the structure and reactivity of chemical intermediates. The experimental program involves the production of chemical transients produced in a supersonic free jet expansion by laser photofragmentation or photoionization, measured by laser induced fluorescence (LIF) and high resolution quantum beat (QB) spectroscopy.

The project has little or no impact on the economy, health, or welfare of the State. No evidence of industrial interest is provided in the proposal. While the principal investigator is enthusiastic about the project, he is relatively inexperienced. The project's time-frame for completion is unrealistic given the proposed equipment purchases. Finally, the proposed budget is high, including significant equipment costs.

USC-Aiken, "Adolescent Mothers and their Children in Aiken County."

The research project focuses on children, born to adolescent mothers, who are at risk of developmental delays. The proposed longitudinal study focuses on the dynamic interactions between the young parents and their children.

The proposed project is poorly conceived and no new ground will be uncovered as a result of the research project. The design of the proposal fails to offer a meaningful direction in realizing project goals. While the project extends over a three-year period, no information is presented regarding the specific activities associated with the project during any given year.

USC-Aiken, "Investigation of Cognitive and Reinforcement Variables on the Persistence of Adaptive Behaviors in a Mentally Retarded Population."

The proposal outlines a systematic research and training program to maximize the transfer of trained skills into novel environmental settings and tasks.

The proposal is poorly written, never clearly defining its purposes in terms of rehabilitation. No schedule of activities for the various components of the project are included, nor is any information given concerning the number of clients served. The PI's publication record is not in the area of mental retardation, although he has published in the area of behavioral modification.

Winthrop College, "Acquisition of Algal Symbionts and Regulation of Symbiont Population Density in AMPHISCOLOPS (Turbellaria, Acoela)."

The goal of the project is to examine the means by which a variety of marine and freshwater invertebrates take up and maintain unicellular algae.

The proposed project is narrowly focused for students in one department, in one institution. The project has no potential impact on the health, welfare, or economic development of the State. The proposal appears to be an equipment request to justify the establishment of an electron microscope laboratory at the College.

Winthrop College, "Research into an Expert System for Emergency Resource Allocation."

The purpose of this project is to develop an emergency management expert system to be used by local governments for resource allocation during natural or man-made disasters.

The proposed project appears to be a one-man project, with an unclear research design and an unclear research methodology. The project is more of a "problem-solving" project than a research project. The research qualification of the PI are questionable. Project costs are high with a majority of the costs associated with release time for the PI.

Research Grant Proposals
FY 1990-91

<u>Institution</u>	<u>Proposals</u>	<u>Funded</u>		<u>Requested</u>	<u>Total</u>
		<u>FY 88-89</u>	<u>FY 89-90</u>	<u>FY 90-91</u>	
The Citadel & Coll. of Charl.	*Construction & Evaluation of Holographic Fourier Transform Spectrometers	\$ 73,615	\$ 61,305	\$ 79,727	\$ 214,647
Coll. of Charl.	*Franchising as an Economic Development Tool for S.C.		46,403	46,133	92,536
Coll. of Charl.	Local Government Administra- tion in SC: The State of the Profession			58,280	58,280
Coll. of Charl.	Effects of Hurricane Hugo on the Bathymetry & Sedimentology Along the Central SC Coast			75,962	75,962
Coll. of Charl.	Chemical Undergraduate Research Training to Improve Native Graduates & Foster Economic Development Gained by Education			75,080	75,080
Francis Marion	*Cellular Basis of Inflammation in the Crayfish	49,085	26,359	27,924	103,368
Francis Marion	Historical Data to Model Contemporary Pollution Legislation for SC			49,415	49,415
Francis Marion	Quantum Beat Spectroscopy of Chemical Intermediates in a Supersonic Free Jet Expansion			119,991	119,991
S.C. State	*Teenage Parents Educational & Occupational Aspirations & Preparation	59,019	73,065	56,832	188,916
USC-Aiken	Adolescent Mothers & their Children in Aiken County			37,810	37,810
USC-Aiken	Investigation of Cognitive & Reinforcement Variables on the Persistence of Adaptive Behaviors in a Mentally Retarded Population			32,842	32,842

(FY 90-91 Research Grant Proposals continued)

<u>Institution</u>	<u>Proposals</u>	<u>Funded</u>		<u>Requested FY 90-91</u>	<u>Total</u>
		<u>FY 88-89</u>	<u>FY 89-90</u>		
USC-Aiken & USC-Coastal	*College Level Essay Analysis & Rating Project (CLEAR)	55,385	58,312	60,910	174,607
USC-Coastal	*Late Quaternary Evolution of the Inner Continental Shelf & Coastal Zone of S.C.: Climatic & Relative Sea Level Changes		64,163	64,193	128,356
USC-Coastal	*Psychobiological Predictors of Cardiac Rehabilitation		27,752	34,899	62,651
USC-Coastal	*Positive Feedback Between Intercidal Filter Feeders & Estuarine Plankton	49,149	42,290	42,982	134,421
Winthrop Coll.	*Estuarine Adaptations & the Ecological Role of Wading Birds in S.C. Coastal Ecosystems		45,525	42,284	87,809
Winthrop Coll.	Acquisition of Algal Symbionts & Regulation of Symbiont Population Density in Amphiscolops			47,948	47,948
Winthrop Coll.	Research into an Expert System for Emergency Resource Allocation			56,183	56,183
Winthrop Coll.	Infant Mortality Reduction in SC: Viable Policies & Programs			69,087	69,087
TOTAL		\$286,253	\$445,174	\$1,078,482	\$1,809,909

*Continuation Projects