DEPARTMENT OF BIOLOGICAL SCIENCES
DELTA STATE UNIVERSITY

VISION FOR THE FUTURE
OVERVIEW OF RECOMMENDATIONS AND REQUESTS FOR 2001-2002
EXECUTIVE SUMMARY OF ACCOMPLISHMENTS: 2000-2001
AND
BUDGET REQUEST: FY 2002

Submitted by:
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Chair and Professor
Unit Administrator

April 9, 2001
VISION FOR THE FUTURE

Mission Statement

The mission of the Department of Biological Sciences is to provide quality instruction in biology, environmental science, and biology education in a manner that will help develop biologically literate, educated professionals. The Department seeks to develop the technical competence and the broad intellectual foundation needed to understand the implications of human influence on all of life and to make informed decisions on biological and ecological questions. The Department also endeavors to meet the general educational needs of the University; to contribute new knowledge in biology, environmental science, and biology education; and to serve the needs of educators, other professionals, and communities within the service area.

Vision Statement

We aspire to be known throughout the region, state, and beyond as a center of excellence in undergraduate biology education. It is our goal to improve to the point that we are held as the standard against which other schools benchmark their programs. To achieve this, we will promote the philosophy that highly technical and dynamic programs in the biological sciences must have priority support status and we will focus our creativity, energy, and resources to achieving that end. We must develop and maintain sophisticated curricula that embrace current technologies, pedagogical styles, and contents that are geared to meet the changing demands of our constituents. Our recent and on-going revision of the biology, pre-health, and environmental science programs to incorporate new demands in those fields are testimony to our resolve to provide up-to-date educational opportunities. Likewise, we desire to expand and enhance our science education program through continued development of the Center for Science and Environmental Education (CSEE). Our vision is for the CSEE to be known as the premier program in the state and region, both for its excellent degree programs and for its formative impact and service in leading and supporting revolutionary development of strong K-12 science education programs in school systems throughout the Delta region. And last, we plan to increase emphasis on research activities that will benefit students and faculty from educational and professional development perspectives.

We envision the department building upon its role as a campus leader in developing and enhancing the university goal of strengthening community outreach. Plans are being made to reform the biological science curriculum to bring more emphasis on civic responsibility and community engagement through experiential and service learning. Continuing education and other post-graduate educational opportunities will be expanded in response to interests and needs expressed by the community. Two major avenues for achieving this part of our vision are (1) our leadership in development of a campus arboretum, gardens, museum, and associated programs for the campus community, school groups, and the lay public and (2) our development of the CSEE outreach programs for the general public.

Finally, we see that external funding will be a much more important component of our resource base in the future. We will continue to aggressively increase our efforts in development activities and, with university support, we will increase grant writing to support departmental programs and demands for resources. We will work toward greatly expanding our endowment to assist in ensuring an adequate and sustainable resource base for our future.
OVERVIEW OF RECOMMENDATIONS AND REQUESTS FOR 2001-2002

The department offers the following recommendations and requests in response to existing demands to meet the vision of excellence in undergraduate education as expressed by President Potter. Additionally, we have been asked to put greater emphasis on meeting President Potter's vision of engagement in terms of community outreach. We have also been pressured to expand our efforts in securing external funding through increased involvement in development activities and in grant writing. These new pressures are redefining the traditional roles of faculty at Delta State University and specifically those in the Department of Biological Sciences. The central administration must be willing to alleviate some existing pressures if we are to meet these new goals. It will not be possible to achieve appropriate levels of success relative to these new pressures without significant investment to facilitate the effort required by faculty and the department. The following recommendations and requests summarize the attention that needs to be given to the department if we are to continue meeting "both" existing and new goals:

- Enhance support of the department so that it may attain the goal of becoming truly excellent and the standard against which other university biology departments are measured. Expand the departmental budget to assure adequate laboratory instructional equipment, field experiences, and other program needs and resources.

- Redefine the "12-hour full load" to include provision of release time for individual faculty to pursue scholarly activity, community and university service functions, and support of student research. Provide this incentive to departmental faculty who desire to embrace President Potter's expanded emphasis on research, grant writing and development activities, community engagement and service, and other outreach functions.

- Demonstrate by action the philosophy that highly technical and dynamic programs in the biological sciences must receive priority support status to assure that program demands are met and maintained.

- Increase support of the CSEE as the science education outreach function of the university and support the initiative to house all science education programs under the CSEE for the benefit of the University, Delta science teachers, their schools, and their students.

- Upgrade Malcolm McEwen's present faculty position in science education to a 12-month coordinator position to provide educational opportunities that match the summer training demands of in-service science educators.

- Create a new (second) faculty position in science education to share the burden of administering the two departmental science education programs, to support CSEE efforts, and facilitate development of a science education presence at the Greenville Higher Education Center.

- Create a new faculty position in zoology to share responsibilities of existing faculty and allowing them to be active in scholarly activities, grant writing, and community service.

- Mount an aggressive alumni/foundation campaign drive with specific focus and commitment to fund/endow the many needs of the Department of Biological Sciences and develop a support partnership with business and industry.

- Provide mechanisms to secure funding that will secure, maintain, and replace equipment,
technology, and other programmatic needs on an "as necessary" basis.

- Provide additional funding in the departmental budget and/or mechanisms above the departmental budget to support departmental activities in alumni/foundation solicitation and student recruiting efforts.

- Create "new" instructional space to adequately and appropriately house the department.

- Provide up-to-date classroom and laboratory instructional technology and specialized computing needs to enhance instructional creativity of faculty.

- Provide the necessary paradigm adjustment to stimulate desirable growth in the graduate program so that it better serves the regional demand.
DELTA STATE UNIVERSITY: EXECUTIVE SUMMARY AND BUDGET REQUEST

Executive Summary of Accomplishments: 2000-2001
Budget Request: Fiscal Year 2002

I. Unit Name: Biological Sciences

Unit Administrator: Grady E. Williams III

II. Personnel

New Positions Requested

• A second faculty position is requested for the Biology Education program.

  Justification. This faculty position is needed to alleviate the enormous and overburdened workload of Dr. Malcolm McEwen in administering the E.S.E. in Biological Sciences major and the M.S.N.S. Option A graduate program in education. This position will facilitate much needed curriculum expansion, in-service science teacher professional development, and school support functions of the science education program at DSU. This position will alleviate pressing needs and facilitate continued development of the Center for Science and Environmental Education (CSEE). Many of these functions are currently precluded or significantly limited due to lack of sufficient science education personnel. Current work loads and community demands needing to be embraced exceed Dr. McEwen’s capacity. This position will also facilitate needed development of a meaningful science education presence at the Greeneville Higher Education Center.

• New faculty position in zoology.

  Justification. This position will provide relief that will facilitate the present faculty in writing grants, in developing scholarly and service activities, in developing student research programs, and will provide for the department to schedule adequate numbers of zoology courses. A zoologist previously filled the position now occupied by Jira Kate N. That position was redefined for cell biology and plant-oriented biotechnology to support the growing need for curriculum development in that area. The loss of that faculty position in zoology, coupled with the loss of Michael Smith who taught essentially halftime in biology has put extra pressure on remaining zoology faculty. The reduction in appropriate zoology personnel has resulted in our inability to offer several courses and restricts release time for existing faculty to write grants or be involved in scholarly activities and community service activities. This position is needed to redistribute the zoology load and thus permit current faculty to embrace the demands for increased scholarly activity and community engagement.

Changes in Current Positions

• It is requested that Dr. Malcolm McEwen’s current 9-month faculty position be upgraded to a 12-month coordinator of science education position and director of CSEE.

  Justification. This change of status will assure a dependable and sustainable base at
DSU allowing us to develop much needed summer programs that appropriately meet educational and professional development demands of in-service science educators and school districts. Those constituents need DSU to provide meaningful, quality science education support workshops, continuing education programs, student science camps, and academic offerings on a dependable basis during the summer rather than on a piece-meal, hit-or-miss basis. Continuity needs to be assured in order for any effective program to be maintained. This position upgrade along with the new science educator position requested above would provide Dr. McEwen with the release time and opportunity to redirect his talents to requisite organizational and grant-writing efforts that will facilitate development of a quality science education program at DSU. We must act to meet the existing unmet demands of the regional science education community as well as the current function of training new science educators. This position change is viewed as critical to implement envisioned programs of the CSEE that will incorporate extensive summer programs as well as school-term programs. This change along with the requested second science educator position will greatly facilitate President Potter’s initiative to increase civic responsibility and community engagement.

- Dr. Robert Stewart will retire at the close of the Spring Semester 2002.
- No faculty members are eligible for promotion. However, Ms. Shawn Thomas is scheduled to complete all requirements for the Ph.D. in December 2002. A dual contract should be considered at this time.

III. Goals for 2000-2001

The Department of Biological Sciences is attendant to the Mission of the University and its goals. Current departmental goals stem from a commitment to achieving the University Mission. They address the specific University goals listed below:

University Goals Addressed (as stated in the Annual Report: 1999):

- Review and update undergraduate and graduate programs to adequately address basic skills, knowledge, and competencies necessary for students to be properly prepared in their chosen fields, to complete licensure requirements, enter the work force, and/or continue advanced study in graduate or professional school.

- Accommodate non-traditional students and the general public by offering a comprehensive program of continuing education, including off-campus classes, independent study courses, non-credit courses, conferences, and workshops.

- Optimize the effective use of technology in support of the education process.

- Enhance educational experiences at all levels by encouraging student and faculty research and other creative work.

- Improve the use of instructional technologies.

- Refine and coordinate more effectively community and economic development activities.

- Support interdisciplinary centers that contribute to our regional mission.
- Beautify the campus.
- Review academic programs for currency in curriculum, pedagogy, instructional technology use and mission-relatedness.
- Strengthen experiential learning activities.
- Pursue federal and private funding.
- Seek ways to enhance student life on campus.

Current departmental goals as listed below are those originally stated in the Annual Report for 1999 for the Academic Year 2000-2001:

**Departmental Goals for 2000-2001:**

- **GOAL.** The department will provide adequate space, equipment, and resources so that students have the opportunity to develop research and technological skills required for success in their future employment or professional or graduate training. The department will have a strong commitment to attract high quality students by maintaining facilities that keep pace with current developments in technology.

  **Activities, Accomplishments and Degree of Success**

  The department requested special budget allocations to purchase the following:

  Microtiter Plate Reader ($7,450)
  CBL Probeware Systems ($27,430.95)
  Polarizing Petrigraphic Microscopes ($3980)
  Compound Microscopes ($18,000)

  These funds were not granted. No commitments to necessary resource, equipment, or space enhancements were forthcoming during the budget year. Failure to improve equipment, facilities, and resources, coupled with return of 26.5% of the departmental operating budget has kept the department in a status quo situation relative to this goal. The Microtiter Plate Reader was acquired through a $5,000 grant from ChemFirst, Inc. along with a science endowment supplement. This piece of equipment has enhanced our instruction in the area of biotechnology and greatly improved our capability. The resources needed to achieve this complex goal are many. This goal will be continued.

- **GOAL.** Students will work with “cutting edge” middle school and high school textbooks, multi-media resources, and supplementary curriculum materials, e.g., science, technology, and society materials, during their course work in the biology education degree program.
Activities, Accomplishments and Degree of Success

No special budget request was made to facilitate this goal. This goal was continued. Minor progress was attributable to funding expenditures from the department's instructional materials budget. A greater degree of achievement was enabled by grant funds obtained through activities of the CSEE. This goal will be continued.

• **GOAL.** The department will initiate curriculum revision to update our program offerings and reflect strategic development of specialized tracks within the BS in Environmental Science major (conservation biology and water quality/management) and within the BS in Biology major (industrial biology, plant sciences and technology, and health professions).

Activities, Accomplishments and Degree of Success

This goal has been achieved as evidenced in the 2001-2002 undergraduate bulletin. This goal did not require a special budget allocation. Further work needs to be done to bring the Environmental Science major to the level of a truly interdisciplinary degree. This could be most effectively and efficiently facilitated through reorganization of the two science departments into a division. This goal will not be continued as a stated goal.

• **GOAL.** The department will define a process to annually examine, modify, and/or redefine its mission and unit goals relative to university goals.

Activities, Accomplishments and Degree of Success

No special allocations were requested for this goal. The department has established standing committees to examine all aspects of the department relative to meeting university goals. We have crafted a departmental mission statement and regularly assess our success in meeting its goals and those of the university. Departmental annual reports are carefully written to specifically address progress of current goals and state new goals designed to facilitate the respective missions of the university and the department. This process will continue. The goal will not be continued as a stated goal.

• **GOAL.** The department will initiate a departmental-wide review of its curriculum and pedagogy.

Activities, Accomplishments and Degree of Success

No special funding was requested to support this goal. The faculty continually acquires discipline-specific knowledge needed to update course offerings. The potential impact of new instructional technologies on biological pedagogy is well known to us. However, failure to support the department and the larger university by supplying that appropriate instructional technology has prevented measurable and needed revision of our pedagogy. Several departmental faculty
members have gone to great personal expense in an attempt to infuse cutting-edge instructional technology into their classrooms. We are also aware of other technologies, such as sophisticated laboratory instrumentation and computer interfaces, that we should be using in our curriculum. Additionally, we are aware of the developing national standards that are being used to measure the success of biological programs in terms of meeting basic biological literacy. We are similarly aware of the general move in biological training to incorporate more service-learning, civic responsibility, and community engagement into the science curriculum. The department recently submitted application to the NSF-funded SENCER project. If accepted, we will send a team to its summer institute that is designed to help initiate and maintain science reform. The department has determined its major needs through this comprehensive review. It is now appropriate to facilitate necessary changes that have been identified and to address revision of individual courses. Thus, this comprehensive goal will not be continued as a stated goal.

• GOAL. The department will upgrade its efforts and abilities in the area of cell biology and biotechnology through curriculum revision, dedication of resources, and strengthened collaboration with the Department of Physical Sciences.

Activities, Accomplishments and Degree of Success

No special budgetary request was made to facilitate this goal. We re-described one faculty vacancy to facilitate this goal by enhancing our instructional staff in the cell, molecular, biotechnology areas. We have had no resources to dedicate towards reaching this goal. The relationship with the Department of Physical Sciences relative to this goal is thus static. There needs to be development of an interdisciplinary approach to this hybrid area of biology and chemistry. The two-department system is problematic and not conducive to development of a true interdisciplinary curriculum in cell biology and biotechnology. A divisional structure would facilitate such development. This goal will be continued.

• GOAL. The department plans to develop a campus arboretum for teaching functions and for utilization in campus and community outreach functions.

Activities, Accomplishments and Degree of Success

No special budget allocation was requested relative to this goal. The department has developed conceptual proposals that incorporate several university goals. The arboretum concept has been refined to include a multi-functional nature center and botanical gardens as well as plans for multiple improvements of various campus sites. President Potter has incorporated these proposals into his visions of excellence in education and community engagement and into the new 75th Anniversary Campaign as major focal points. Initial work has been funded through federal and state grants obtained by the CSEE. We are presently using grant funds to develop conceptual designs for development of university grounds north of the baseball stadium, the DSU golf course, and at the Merigold site of the CSEE. This goal will be continued.
GOAL. The department plans development of a functional Center for Science and Environmental Education (CSEE) to meet the resource, professional development, and other educational support needs of Delta school districts, science teachers, and their students; to provide for continuing science education experiences for the broader community; and to provide experiential learning activities for our departmental science education majors.

Activities, Accomplishments and Degree of Success

The CSEE was officially sanctioned and established operation in May 2000 following budget hearings. President Potter has identified the CSEE as one of the five centers of excellence to promote in the new 75th Anniversary Campaign. Special budgetary requests to facilitate this goal included (1) elevation of the 9-month appointment of Dr. Malcolm McEwen to a 12-month appointment and (2) creation of a second position in science education. Both requests were denied. No operating expenses were requested to fund start-up of the CSEE. The only special budget allocation related to this goal was a $2,000 salary supplement for Dr. McEwen for his service as Director of the CSEE. There was no special allocation for operating expenses. CSEE operating expenses were initially met through and are still tied to the departmental budget. However, recent grant success has provided some development and operating monies for the CSEE, thereby relieving some budgetary dependency on the department. Although the CSEE has been operative for less than one year and has received essentially no special allocations, it has achieved tremendous success. A summary of the activities and achievements of Dr. McEwen and the CSEE follows. This goal will be continued.

The first year of operations of the CSEE has been quite productive. We successfully completed a number of activities by partnering with other local, state, and federal entities that have an interest in improving science and environmental education programs. The chair and faculty of the Department of Biological Sciences have been extremely supportive of the CSEE by donating time and effort to the project. Individual faculty members came forward to propose programs that enhanced the long-range vision of the CSEE. We anticipate that this team effort will continue to be productive as we expand CSEE programming. Appearing below is information concerning proposal preparation activities, sponsored workshops, and meetings followed by an overall summary of accomplishments of the CSEE:

Proposals and Funded Grants

The following proposals were submitted during summer and fall 2000 and spring 2001:

<table>
<thead>
<tr>
<th>Title of Proposal/Funding Agency</th>
<th>Amount</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Created Wildflower Meadows and Prairie Habitat Proposal/ Natural Resources Conservation Service</td>
<td>2,000.00</td>
<td>funded</td>
</tr>
</tbody>
</table>
Backyard Conservation Demonstration  
Sites Proposal/  
Northwest Miss. Resource Conservation Development Area  
3,000.00 funded

Urban and Community Forestry Assistance Grant Proposal/  
Mississippi Forestry Commission  
10,000.00 funded

Using Great Explorations in Math and Science (GEMS) to Address National Science Education Standards in Elementary School Science Proposal/  
Delta Rural Systemic Initiative  
12,092.50 funded

Transportation Enhancement Tree Planting Grant Proposal/  
Miss. Dept. of Transportation/Miss. Forestry Commission  
14,535.00 funded

Using Technology to Address National Science Education Standards in Precollege Biology Instruction Proposal/  
Delta Rural Systemic Initiative  
28,589.40 submitted

Development of a Wetlands Education Program For the Mississippi Delta Proposal/  
Mid-Delta Empowerment Zone Alliance  
100,000.00 funded

Building a Comprehensive Support Structure For Precollege Science Education in the Mississippi Delta Proposal/  
Mid-Delta Empowerment Zone Alliance  
Bolivar County set-aside funds  
300,000.00 submitted

Created Wetlands at DSU’s CSEE Proposal/  
Entergy Environmental Stewardship Program  
10,000.00 submitted

The total amount of grant money obtained thus far during the 2000-2001 academic year is $141,627.50. “Using Technology to Address National Science Education Standards in Precollege Biology Instruction” is under review by the funding agency with a funding decision date of April 30. Initial discussion of “Building a Comprehensive Support Structure for Precollege Science Education in the Mississippi Delta” will probably occur during the April meeting of the Bolivar County MDEZA commissioners. A decision regarding the “Created Wetlands at DSU’s CSEE” proposal will be announced by Entergy, Inc. on April 22, 2001. We have two other proposals at various levels of development that will be submitted to funding agencies in late spring or early summer of this year.
The CSEE continues to enjoy outstanding partnerships with the Institute for Effective Teaching Practices (IETP) at Mississippi Valley State University and the Delta Rural Systemic Initiative (DRSI). Though not reflected in the grant funds summarized above, it is important to note that IETP has agreed to fund the summer GEMS workshop by covering the $5,500.00 workshop facilitators' fee. CSEE currently has two other projects in the developmental stages that will be joint ventures with IETP. DRSI has been an outstanding partner in terms of grant funding and in using its system of field representatives to promote programs associated with the CSEE. Another outstanding partner is the Natural Resources Conservation Service (NRCS). This agency completed a topographic survey of the CSEE property in Merigold gratis, thus facilitating production of a master plan for the property. NRCS was also instrumental in our efforts to obtain the services of a Mississippi State University landscape architecture student to conceptualize and draw the master plan. Development of additional partnerships is an on-going process. We have made contacts with Forestry Suppliers, Inc. in Jackson and the Mississippi Department of Environmental Quality. Forestry Suppliers is interested in supporting short workshops to familiarize preservice teachers with environmental education curricula, e.g., Project Learning Tree, Project WILD, etc. The Department of Environmental Quality has funds available to support environmental education workshops for inservice teachers. We are establishing a relationship with Flinn Scientific, Inc. of Batavia, Illinois. They have indicated an interest in partnering with the CSEE on a cost-sharing basis to offer a laboratory safety training workshop for science teachers during summer, 2002.

Activities Associated with the CSEE

The CSEE has been active during the 2000-2001 academic year in conducting meetings, workshops, and other activities that have contributed to program development. As mentioned above, much of this activity has been possible due to establishment of partnerships with other groups. These activities along with information concerning our CSEE partners appears below:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>College biology teaching internship program</td>
<td>Mississippi Delta Community College</td>
</tr>
<tr>
<td>Consulting on development of hands-on middle school science curriculum for Grenada Middle School</td>
<td>Grenada Public Schools</td>
</tr>
<tr>
<td>Project Learning Tree (PLT) workshop for DSU preservice elementary education majors</td>
<td>Mississippi Forestry Commission</td>
</tr>
<tr>
<td>Workshop for Delta precollege biology teachers in the use of calculator-based laboratories (CBL) in biology classrooms</td>
<td>Eisenhower Math/Science Program at Ole Miss, Institute for Effective Teaching Practices at MVSU</td>
</tr>
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Hosted fall meeting of the Delta Science Teachers Association (DSTA) 

CSEE facilitated development of the Northwest Mississippi Urban Forestry Council (NMUFC) and hosted its fall meeting.

CSEE hosted two meetings of the NMUFC during spring semester, 2001

Delta Science Teachers Association

Northwest Mississippi Urban Forestry Council

The CSEE facility in Merigold will serve as the home site for NMUFC.

Northwest Mississippi Urban Forestry Council

Additionally, the CSEE has been invited to become a National Network Site for the Great Explorations in Math and Science (GEMS) program. GEMS is a national curriculum supplement program in math and science for elementary and middle school students. This is an important development since the CSEE will be the first and only GEMS National Network Site in Mississippi. Several GEMS staff members from the Lawrence Hall of Science at the University of California, Berkeley will be at DSU to “launch” our National Network Site in June 2001. The “launch” activity will include a GEMS workshop for 60 elementary school teachers.

A Summary of CSEE Accomplishments

Thus far during the 2000-2001 academic year we have identified the following as noteworthy accomplishments of the CSEE:

- Securing external funding for CSEE programs from a variety of local, state, and regional sources

- Development of workable partnerships with a range of entities interested in science and environmental education

- Creation of a master plan for the CSEE property in Merigold

- Completion of substantial amounts of work associated with implementation of each of the grants received by CSEE

- Development of a program to introduce Delta educators to programs offered by the CSEE

- Recognition of DSU and the CSEE by the GEMS program as a national network training site for this elementary/middle school science curriculum program
IV. New Goals and Special Budget Requests

The department has the following goals for 2001-2002:

- **GOAL.** The department will provide adequate space, equipment, and resources so that students have the opportunity to develop research and technological skills required for success in their future employment or professional or graduate training. The department will have a strong commitment to attract high quality students by maintaining facilities that keep pace with current developments in technology.

  **Justification Relative to University Goals**

  The department is expected to maintain currency and appropriateness of its programs by adequately addressing basic skills, knowledge, and competencies in undergraduate and graduate programs. We are expected to optimize and improve the use of instructional technology. We are challenged to do more to encourage research and creative activities and to increase experiential and service-learning components in our programs.

  **Assessment Plan**

  Records of acquisitions relative to appropriate space, equipment, and resources and their use in enhancement of research opportunities will be used to assess success in meeting this goal. Assessment will also be based on examination of course syllabi that relate the incorporation of research and technological skill-building experiences.

  **Budget Requirement**

  $1,125 for installation of internet drops in 15 classrooms and laboratories. This will provide access for real-time web-based activities to all instructors and their students in all courses. Instructors are now prevented from using this new instructional technology and integrating it into their pedagogy because there is almost no access in the teaching venues. This request is made as an emergency to relieve faculty frustration and rapidly facilitate integration of the internet into their courses. All efforts to acquire web access through ITS and other mechanisms have failed. This will allow the department to facilitate its own access.

  $13,000 for two SmartCart portable video projection systems with projectors and laptop computers. This will allow flexibility in pedagogy and provide relief for faculty wanting to use web, power point presentations, and other instructional technologies in the classroom. It will also support guest lecturers who want to use power point and other technologies in their seminars. It will provide us with the technology to make appropriate presentations at off-campus venues. We currently have no such technology available at our disposal. These units will have stand-alone applicability and will also be utilized with the internet drops requested above so that all classrooms and laboratories will have internet access available.
$17,000 is needed for the geology/environmental science laboratory for purchase of petrographic polarizing microscopes, storage cabinets, and basic earth science supplies including maps, charts, models, and mineral, rock, and fossil specimens. This request supports all majors. Our new offerings in the very popular areas of geology and earth sciences are rapidly exceeding our ability to meet the student demand. The courses need this further enhancement.

$18,000 is requested to purchase 15 compound microscopes @ $1200 each for the botany laboratory. These scopes are needed to update the laboratory by replacing aged, worn out, broken, and irreparable 34-37 year-old scopes that were salvaged from general biology and zoology about seven years ago. Five new scopes were purchased for the botany laboratory two years ago. This purchase would complete this replacement project and bring the equipment up to par.

- **GOAL.** Students will work with “cutting edge” middle school and high school textbooks, multi-media resources, and supplementary curriculum materials, e.g., science, technology, and society materials, during their course work in the biology education degree program.

**Justification Relative to University Goals**

The department is expected to maintain currency and appropriateness of its programs by adequately addressing basic skills, knowledge, and competencies in undergraduate and graduate programs. Instructional technology and instructional resources are currently developing at an accelerated pace. To meet the University goal of “improving the use of instructional technologies” in our biology education degree program it is mandatory that our students have access to and instruction concerning “cutting edge” curriculum materials, computer software, scientific probeware, and multi-media resources. Many of these items are already available and being used in precollege classrooms in the Delta. In this respect, some precollege science classrooms are better equipped than our biology education training facility here at DSU. Activities associated with the CSEE should assist us in closing this gap but additional support is needed from the University.

**Assessment Plan**

Should the budget requirement associated with this request be approved, by the end of the 2001-2002 academic year we plan to procure the necessary curriculum materials, software, and multi-media resources necessary to upgrade some of the critical elements of our biology education program. These resources will be used primarily in two courses: CUR 493, “Teaching the Sciences” and BIO 435/535, “Methods and Materials in the Biological Sciences”. Students will construct lesson plans based on use of these new resources and then micro-teach those lessons to other students in the classes.

**Budget Requirement**

$5,000 is needed for academic year 2001-2002.
• **GOAL.** The department will continue to reform its curriculum and pedagogy to establish and maintain alliance with national standards for scientific literacy. We will incorporate increased experiential and service-learning activities focused on development of civic responsibility and community involvement.

**Justification Relative to University Goals**

The department is expected to maintain currency and appropriateness of its programs by adequately addressing basic skills, knowledge, and competencies in undergraduate and graduate programs. We are expected to optimize and improve the use of instructional technology. We are challenged to increase efforts to encourage research and creative activities and promote development of civic responsibility by increasing experiential and service-learning components in our programs.

**Assessment Plan**

Activities focused at meeting this goal will be assessed by documented changes in course descriptions, syllabi, and programs of study. Other activities that address this goal will be monitored and documented, for example, the outcome of participation in the SENCER project.

**Budget Requirement**

$30,000 is needed for CBL Probeware Systems to establish investigative laboratories for freshman level biology laboratories as we initiate necessary science curriculum reform. As described in our application for participation in the SENCER program, this equipment is central and critical in our plans for science reform with the purpose of addressing the new national standards for biological literacy and the need to develop a sense of civic responsibility in our majors and non-majors. Until this equipment is acquired, reform of the curriculum cannot proceed.

• **GOAL.** The department will upgrade its efforts and abilities in the area of cell biology and biotechnology through curriculum revision, dedication of resources, and strengthened collaboration with the Department of Physical Sciences.

**Justification Relative to University Goals**

The department is expected to maintain currency and appropriateness of its programs by adequately addressing basic skills, knowledge, and competencies in undergraduate and graduate programs. We are expected to optimize and improve the use of instructional technology. We are challenged to do more to encourage research and creative activities and to increase experiential components in our programs.

**Assessment Plan**

Evidence used to measure the success in meeting this goal will be the
documentation relative to re-description of existing courses and descriptions of new courses to include meaningful laboratory exercises. Also, implementation of these revised courses will testify to the success of this goal. Student opinions and course evaluations will also be documented in assessing success of this goal.

Budget Requirement

No budgetary request is made at this time. A lab equipment budget is not required at this time as the first task is to study the existing curriculum and redesign the coursework for inclusion of laboratory experiences. The CBL probeware systems request above will support these laboratories as well as the general biology courses. Additional funding will be requested during the next funding cycle.

- **GOAL.** The department plans to develop a campus nature center, gardens, and arboretum for teaching functions and for utilization in campus and community outreach functions.

Justification Relative to University Goals

One requirement of the department is to address the needs of non-traditional students and the general public. Activities of the department in community outreach projects through its own initiatives as well as participation with various centers are thus appropriate. In working to develop the Delta Nature Center and Gardens the department is mounting a major initiative designed to meet these university goals, as well as enhancing student life on campus, seeking external funding, and providing opportunities to strengthen experiential learning activities for our major and non-major students.

Assessment Plan

Review of documentation related to production of conceptual designs, working plans, foundation development activities, and grant writing activities will help in assessing our success in meeting this goal.

Budget Requirement

No special allocation is requested, as the intent is to secure and utilize external funding sources through grant writing and foundation development activities.

- **GOAL.** The department will work to expand the operations of the Center for Science and Environmental Education (CSEE) to incorporate both community service and university academic program components. The CSEE will work to meet the resource, professional development, and other educational support needs of Delta school districts, science teachers, and their students and to provide for continuing science education experiences for the broader community. The CSEE will also develop experiential learning activities for departmental science education majors, thereby becoming an active force in our undergraduate and graduate professional education programs.
Justification

The University has identified as one of its goals to “strengthen the cooperative relationships with business, industry, community groups, government, and other educational institutions.” Additionally, in the 2000-2001 University Goals Statement there is a commitment to “support interdisciplinary centers that contribute to our regional mission.” Through its emphasis on development of a comprehensive support structure for pre-college science education in the Mississippi Delta, the CSEE is assisting the University in meeting these goals by establishing partnerships with many of these entities. During the 2001-2002 academic year the CSEE proposes to continue to build partnerships and implement programs that will bridge the gap between the college classroom and the working world for students interested in careers in science education.

Assessment Plan

The CSEE will carefully track utilization of the programs and services that it offers during the 2001-2002 academic year. Another area that will be addressed is the quality of programs offered by the CSEE. Questionnaires will be used extensively to collect this type of information from individuals participating in CSEE programming.

Budget Requirement

For budget purposes, we wish to propose that the CSEE be identified as an organization separate from the Department of Biological Sciences. Creation of this new organization label and its attendant “org” number in the budget will make tracking of CSEE income and expenses easier. Granting signatory authority over CSEE funds to the Director of the CSEE will facilitate handling of budgetary paperwork.

As a recently established organization, the CSEE has not been previously included in the university budget. The university has provided land and buildings at the Merigold site for development of the CSEE. Additionally, cost of utilities (electricity, water, and gas services) at the Merigold site has been absorbed by the university. In addition to continuing use of property, buildings, and utilities, we wish to request university budgetary support during the 2001-2002 academic year to cover certain expenses associated with day-to-day operation of the CSEE. The total amount requested is $6,070.00. A budgetary breakdown is shown below.

Budget Categories for the CSEE

Appearing below are suggested budget categories for the new organization (“org”) to be identified as the “Center for Science and Environmental Education”.
<table>
<thead>
<tr>
<th>Category Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>7400 Travel</td>
<td>500</td>
</tr>
<tr>
<td>7500 Contractual services</td>
<td></td>
</tr>
<tr>
<td>75210 Postage</td>
<td>700</td>
</tr>
<tr>
<td>75220 Telephone, local service</td>
<td>1,280</td>
</tr>
<tr>
<td>75230 Telephone, long distance</td>
<td>500</td>
</tr>
<tr>
<td>75240 Telephone installation and maintenance</td>
<td>95</td>
</tr>
<tr>
<td>75410 Advertising</td>
<td>150</td>
</tr>
<tr>
<td>75820 Dues</td>
<td>45</td>
</tr>
<tr>
<td>7600 Commodities</td>
<td></td>
</tr>
<tr>
<td>76110 Printing, binding, padding</td>
<td>300</td>
</tr>
<tr>
<td>76120 Duplication-reproduction</td>
<td>1,000</td>
</tr>
<tr>
<td>76130 Office supplies</td>
<td>1,500</td>
</tr>
</tbody>
</table>

**TOTAL** $6,070

*Portions of these expenses may be covered by grants, assuming proposals are funded.

As the CSEE programs continue to develop at the Merigold site the university needs to address three critical areas as budget requests:

- The property and buildings in Merigold are currently uninsured. Refurbishment of these buildings and then stocking them with scientific equipment and supplies represents a significant outlay of cash that we would currently not be able to recover should catastrophe strike. We request that the university add insurance coverage for buildings and building contents at the Merigold site.

- There is inadequate security at the Merigold site since a security fence does not currently surround portions of the property. We now have a significant investment in trees to protect along with the equipment contained in the metal building. The soon to be refurbished greenhouse represents another investment that needs to be protected. We request that the university complete the perimeter fence so that it surrounds the entire property. This enclosure will double as a safety fence to prevent school children participating in CSEE activities from nearing the adjacent highway.

- The metal building is in need of refurbishment. Improvements that need to be made include interior and exterior painting and structural modifications to the rear portion of the building. We currently have grant funds available to purchase materials and supplies for the work. We request that the university supply the labor to complete the work through its physical plant services as it would for any maintenance project.
we have accommodated for insufficient funds through budget transfers from other contractual accounts. Annual repair and service for microscopes just experienced a 10% increase.

Priority Levels

All of these requests are critical routine expenditures. No priority can be set.

Recommendation for Budget Account Transfers

All of the above increases can be met through budget transfers from existing accounts.

75590  Other rental - can be zeroed as it is always transferred to 75530 (-235)

75820  Dues - can be zeroed as the department no longer pays annual dues (-60)

Other funds needed ($2210) to increase the above funds by the recommended amounts described above should be moved from 75660 Maintenance contracts.