

ACADEMIC PLAN 2005-2010

BIOLOGY DEPARTMENT

**THE UNIVERSITY OF NORTH CAROLINA
AT PEMBROKE**

April 16, 2005

EXECUTIVE SUMMARY

The Department of Biology strives to support and contribute to the University of North Carolina at Pembroke's mission by providing its students with a broad-based educational experience in preparation for roles of knowledgeable, resourceful, and responsible leadership. Through its diversity of course offerings and its commitment to excellence in teaching, research, and service, the department provides academic programs that prepare students for careers as biological professionals, biological educators, or for post-graduate study. The department strives to provide its faculty with the opportunities, resources and rewards to achieve excellence in teaching, scholarship, and service to the university and local communities. Members of the biology faculty strive to enhance and enrich the intellectual, economic, social and cultural life of the region.

The biology department currently has slightly more than 300 majors. As a consequence we are one of the largest departments on the UNCP campus in terms of generation of student semester hours. The department currently provides five programs leading to the Bachelor of Science degree. These degree programs are (1) Biology, (2) Biology with Teacher Licensure, (3) Biology with Emphasis in Medical Technology, (4) Biology with Biomedical Emphasis, and (5) Environmental Science. A new interdepartmental degree program in Biotechnology has been planned and should be implemented in Fall 2005. A new major responsibility for the department is support of the Nursing degree program by providing anatomy and physiology and microbiology as prerequisites for that program. This responsibility has added greatly to the non-major teaching load and is requiring the addition of new faculty.

The biology department has 15 full-time and four part-time faculty members. Of the 15 full-time faculty, two are in tenure track positions and seven are tenured. All six of the non-tenure track full-time faculty positions are funded by UNCP. Of the four part-time faculty, one is a "Change Agent" supported by a grant from the PMABS program, one is a phased retiree and two are SPIRE Postdoctoral Fellows supported by a grant from the PMABS program. The biology faculty represent a wide range of sub-disciplines including botany, zoology, ecology, field biology, molecular biology, cell biology, genetics, microbiology, and science education. At least three new faculty positions seem necessary during the planning period (these positions are presented here in their departmental priority rank): 1. A tenure-track immunologist to support the biotechnology degree program and the nursing program. 2. A tenure-track individual of indeterminate specialty (most probably microbiology) to support the nursing program and projected growth of majors within the department. 3. A coordinator of undergraduate studies to help the departmental chair with the administration of majors within the department.

The biology department currently occupies the newly renovated Oxendine Science Building in August of 2004. The renovated science building provides adequate laboratory space. Teaching space is no more than adequate and additional space should be found during the planning period. A second microbiology lab will help meet the needs of the nursing program. The most pressing problem with the new building is office space, with the present number of offices being just enough to house existing faculty and staff. Any increase in size of the department in the near future (which is slated to happen next year) will immediately cause an office shortage. Indeed, if

enrollment growth at UNCP continues as planned, the renovated science building will be inadequate in terms of teaching and office space next year and for the foreseeable future. A new office/research wing for the science building is needed right now, and should be planned by the administration in the near future. If such a wing cannot be built, then I formally request that all or a large proportion of the space currently occupied by UCIS be allocated for Biology Department office and personal research laboratory space when UCIS moves to its proposed new home (projected to be built within the planning period). Additional necessary facilities should include: (1) a large teaching greenhouse to supplement the small (currently non-functional) teaching greenhouse under construction) (2) access to facilities of the Highland Biological Station and (3) access to facilities of the Bermuda Biological Station for Research.

In order to fulfill its mission statement, the Biology Department has five main goals with associated objectives and assessment criteria. These five goals are listed below; objectives and assessment criteria may be found in the larger document.

Goal 1: To maintain a diverse and up-to-date curriculum that accurately reflects the current state of the major areas of biological science, which includes courses that satisfy the University's General Education requirements and which is intellectually challenging yet within the capabilities of the serious student.

Goal 2: The Biology Department will graduate students who are prepared for entry into the workplace or graduate/professional programs of study.

Goal 3: To maintain a faculty who stay current in their respective disciplines by engaging in a variety of scholarship activities which result in enhanced expertise, publications, updating of lecture and laboratory presentations, and general strengthening of the programs offered by the department. The department should upgrade its efforts in undergraduate research.

Goal 4: The biology department will maintain a faculty who provide leadership and expertise that enhances the University's strength and educational reach in the region by participating in appropriate levels of service to the University and to the local communities.

Goal 5: The biology Department will provide programs and/or courses for students who are seeking initial licensure, lateral entry, licensure-only, and advanced licensure in the area of biology.

ACADEMIC PLAN 2005-2010

THE UNIVERSITY OF NORTH CAROLINA AT PEMBROKE
BIOLOGY DEPARTMENT

MISSION STATEMENT OF THE BIOLOGY DEPARTMENT

The mission of the Biology Department is to support and contribute to the University's mission of providing its students with a broad-based educational experience in preparation for roles of knowledgeable, resourceful, and responsible leadership. Through its diversity of course offerings and its commitment to excellence in teaching, research, and service, the department provides academic programs that prepare students for careers as biological professionals, biological educators, or for post-graduate study. The department strives to provide its faculty with the opportunities, resources and rewards to achieve excellence in teaching, scholarship, and service to the university and local communities. Members of the biology faculty strive to enhance and enrich the intellectual, economic, social and cultural life of the region.

INTRODUCTION

Degree Programs

The Department of Biology of the University of North Carolina at Pembroke currently provides five programs leading to the Bachelor of Science degree. These degree programs are (1) biology, (2) biology with teacher licensure, (3) biology with emphasis in medical technology, (4) biology with biomedical emphasis and (5) environmental science. Within the biology degree program students have the option of choosing a track in one of four biological sub-disciplines: botany, zoology, molecular biology and environmental biology. All biology and supporting chemistry courses are intended to provide graduates a strong background in five major biological areas: molecular and cellular biology, genetics, ecology, environmental science and organismal function and systematics. Biology graduates will have experienced a diversity of observational and experimental laboratory procedures. Students in the teacher licensure program must complete all requirements of the biology program and additional courses in a variety of sciences, mathematics and education. The variety of required coursework insures a broad base in several science areas with emphasis in biology, as well as intensive preparation for, and exposure to, teaching in public schools. Students in the medical technology program receive the final thirty hours of credit for one year of clinical work and training at an affiliated hospital. The biomedical emphasis program is structured to prepare students that wish to pursue a career in one of several health professional schools.

Faculty

The biology department has 15 full-time and four part-time faculty members. Of the 15 full-time faculty, two are in tenure track positions and seven are tenured. All six of the non-tenure track full-time faculty positions are funded by UNCP. Of the four part-time faculty, one is a “Change Agent” supported by a grant from the PMABS program, one is a phased retiree and two are SPIRE Postdoctoral Fellows supported by a grant from the PMABS program. The biology faculty represent a wide range of sub-disciplines including botany, zoology, ecology, field biology, molecular biology, cell biology, genetics, microbiology, and science education. All of the tenure track faculty hold the Ph.D. degree in the appropriate area of specialization. Each semester each biology faculty member typically teaches at least one course in his or her area of specialization and one introductory biology course. The average teaching load for members of the biology faculty is three courses. Each of these courses has three lecture hours and typically one laboratory of at least two hours duration. The biology department is currently involved in an attempt to find the appropriate individual to occupy the Friday Chair in Molecular Biology and Biochemistry. The person that occupies this position will add additional expertise to our program in molecular biology.

The Biology Department has immediate and pressing need for additional faculty for the following reasons (Appendix A): 1. Rapid general enrollment growth at UNCP necessitating more sections of general education courses. 2. Increases in the number of majors in the pre-medical and nursing areas. Over half of new majors in the biology department wish to enter medically related professions. This puts increasingly great pressure on introductory and mid-level biology electives important to these majors. In particular, Human Anatomy and Physiology, Animal Physiology and Microbiology currently close early and have large waiting lists each semester. 3. A proposed interdepartmental degree in biotechnology (in cooperation with the Department of Chemistry and Physics) will require the hiring of an immunologist to support coursework associated with that degree program. 4. An individual to support projected general enrollment growth within the major.

Students

In recent years the department of biology has experienced significant, consistent growth in numbers of students. The biology department currently has slightly more than 300 majors. As a consequence we are one of the largest departments on the UNCP campus in terms of generation of student semester hours. The make-up of the students in the biology department, in general, is a reflection of the composition of the overall student body (predominantly from the surrounding region with a significant minority percentage). Although the number of students interested in the various health professions continues to compose a large percentage of biology majors, there has been significant growth in several other areas, including environmental biology and biotechnology.

Facilities and Support

The biology department currently occupies the newly renovated Oxendine Science Building in

August of 2004. The renovated science building provides adequate laboratory space. Teaching space is no more than adequate and additional space should be found during the planning period, particularly for a second microbiology lab. The most pressing problem with the new building is office space, with the present number of offices being just enough to house existing faculty and staff. Any increase in size of the department in the near future (which is slated to happen next year) will immediately cause an office shortage. Indeed, if enrollment growth at UNCP continues as planned, the renovated science building will be inadequate in terms of teaching and office space next year and for the foreseeable future. A new office/research wing for the science building is needed right now, and should be planned by the administration in the near future. If such a wing cannot be built, then I formally request that all or a large proportion of the space currently occupied by UCIS be allocated for Biology Department office and personal research laboratory space when UCIS moves to its proposed new home (projected to be built within the planning period). Additional necessary facilities should include: (1) a large teaching greenhouse to supplement the small (currently non-functional) teaching greenhouse under construction) (2) access to facilities of the Highland Biological Station and (3) access to facilities of the Bermuda Biological Station for Research.

To summarize, there is general consensus among biology faculty and staff that the new space in renovated Oxendine Science Building is inadequate to meet classroom and office space demands in the short-term future (Appendix A). Certainly the new space is insufficient to accommodate anticipated long-term growth in numbers of students, faculty, programs and faculty research activities. It is not anticipated that the move to the new science building will significantly ameliorate this shortage of space. In particular, the administration needs to address the issue of additional office space and the need for personalized research space immediately if possible.

The department has an excellent collection of equipment, particularly in the areas of molecular biology and biotechnology. A partial listing of this equipment would include: a scintillation counter, an ultracentrifuge, an epifluorescent microscope, polymerase chain reaction thermocyclers, research grade physiographs, and a variety of spectrophotometers, centrifuges, electrophoretic equipment etc. The general consensus is that the department is currently in very good position in regard to its equipment holdings.

Historically the prime source of funding for this equipment has been externally funded programs such as the Minority Access to Research Careers Program (NIH), the Historically Minority Universities Biotechnology Initiative (North Carolina Biotechnology Center) the Partnership for Minority Advancement in the Biomolecular Sciences (Howard Hughes Foundation), and an environmentally oriented grant from the Department of Energy. In addition to funds for equipment, these grants have also provided the major portion of the funding for essential laboratory supplies. In addition, the department receives a relatively small annual appropriation from the state to fund the purchase of laboratory supplies, but there is no recurring budget for equipment. The continuation of at least some of these externally funded programs appears to be necessary if the department is to continue to provide adequate laboratory experiences to its students.

Other Facilities and Support

In general the support of the efforts of the biology department is excellent. Every faculty member and staff person has a personal computer. The UNCP Computer Center provides technical support as needed. A high lumen liquid crystal display projector and a scanner are available for use in conjunction with the computers.

The library resources of the biology department (housed in the Sampson-Livermore Library) consist of about 5,000 bound volumes and 84 journals. The support staff for the biology department includes a secretary and a laboratory manager who are supported by appropriations from the state. In addition, the department has a biotechnology laboratory manager who is funded by the North Carolina Biotechnology Center.

The Biology Department is currently requires the construction of a new office/research laboratory wing to the building or, alternatively the renovation of UCIS space if and when it becomes available.

ASSUMPTIONS

1. The department will continue to provide a diverse and up-to-date curriculum that supports degree programs in biology (with concentrations in botany, zoology, molecular biology, and environmental biology), biology with teacher licensure, biology – medical technology, environmental science, and biology – biomedical emphasis. In addition, the department will explore opportunities or needs for development of new programs or courses. Specifically, we will explore the need to develop a new degree program in biotechnology in cooperation with the Department of Chemistry and Physics. In addition, continued growth of the department's role in the Science Education Program will eventually necessitate an increase in faculty.
2. As we move into the 21st century, recruiting the best and the brightest will require that UNCP become a household name in this region and beyond. In this area we stand to gain a lot from partnerships established with other educational institutions and industry. Through this mechanism we can provide our students with direct access to internships in governmental and industrial settings.
3. Students will continue to need and profit from a variety of programs that provide hands-on instruction and practical experiences. Employers and graduate and professional schools will seek college graduates who have basic laboratory, teaching, and/or research skills and experience. Since, in the past, allocations from the state have represented a relatively small portion of the funding needed for laboratory supplies and equipment it is assumed that these allocations will increase as funding from external sources becomes more difficult to obtain.
4. There is continuing need for faculty to stay abreast of the current state of the art of his/her area of expertise and to utilize updated materials and tools in the lecture and the laboratory; there is need to increase scholarship activities by faculty to enhance

competitiveness for institutional and research grants.

5. Partially as a result of growth of the University in general and partially because an increasing percentage of students will choose a biology curriculum, the department will continue to experience consistent growth in the numbers of students taking biology courses and majoring in biology. As in the past, a large percentage of these students will be interested in curricula related to the health care field but there will be significant growth in many other areas including biotechnology and environmental biology.

GOALS AND OBJECTIVES

Goal 1: To maintain a diverse and up-to-date curriculum that accurately reflects the current state of the major areas of biological science, which includes courses that satisfy the University's General Education requirements and which is intellectually challenging yet within the capabilities of the serious student.

Objective 1.1: The department will continue to offer a variety of quality degree programs in biology (with concentrations in botany, zoology, molecular biology and environmental biology), environmental science, biology with teacher licensure, biology – medical technology, and biology – biomedical emphasis and other fields as appropriate.

Action 1.1.1: Degree programs will continually be reviewed and updated to insure currency, comprehensiveness and responsiveness to student needs.

Evaluation 1.1.1.1: The number, quality and breadth of degree programs offered

Assessment procedure: The department chair and faculty will conduct an annual review of all programs to determine currency, comprehensiveness and responsiveness to student needs.

Objective 1.3: To explore the possibility of a new degree program in biotechnology to be administered jointly with the Department of Chemistry and Physics.

Action 1.3.1: The Faculty Senate of UNCP has approved the program, the Permissions to Plan and Implement have been approved by the UNC Office of the President.

Evaluation 1.3.1.1: Student demand and financial feasibility of a new degree program in biotechnology.

Assessment procedure: The relevant departmental chairs, the Provost and Vice Chancellor for Academic Affairs, and the UNC Office of the President will evaluate the findings of the intradepartmental committee as described in the permission to plan the program.

Objective 1.4: To add additional faculty with appropriate expertise. At this time four new faculty members are thought to be necessary over the planning period: Three Ph.D. level individuals to teach 1. Immunology, 2. Microbiology/general departmental growth needs 3. An undergraduate programs coordinator.

Action 1.4.1: A recommendation will be made to the Provost and Vice Chancellor for Academic Affairs that the biology department should start the search for the Immunologist within the next year.

Evaluation: 1.4.1.1: The addition of new faculty members with appropriate expertise.

Assessment procedure: The department chair will determine if individuals with appropriate expertise have been added to the biology faculty.

Goal 2: The Biology Department will graduate students who are prepared for entry into the workplace or graduate/professional programs of study.

Objective 2.1: Biology graduates will have a basic knowledge of the major concepts of the discipline along with concepts specific to the degree program chosen.

Action 2.1.1: Courses in each degree program will require knowledge of the major concepts of Biology as well as concepts specific to the program.

Objective 2.2: Biology graduates will be able to communicate effectively, integrate basic knowledge with new findings, and think critically.

Action 2.2.1: Some courses in each degree program will require oral presentations and/or written assignments.

Action 2.2.2: Some courses in each degree program will require integration and critical thinking skills.

Objective 2.3: Biology graduates will have developed skills needed to perform experimentation and data gathering associated with the degree program chosen.

Action 2.3.1: Some courses in each degree program will require effective use of laboratory/field equipment and procedures common to the sub discipline.

Group Actions, Objectives 2.1-3.

Action 2.1-3.1: The Biology Department will maintain a highly qualified faculty who continues to develop teaching, laboratory, and research skills.

Action 2.1-3.2: Faculty will provide syllabi for each course with clear measurable objectives, activities to support those objectives, and methods used to evaluate student outcomes.

Action 2.1-3.3: Faculty will be available outside class to support student learning and to advise students toward successful completion of the program chosen.

Action 2.1-3.4: Faculty will provide or direct interested students to opportunities for individual research projects.

Evaluation: Grade analysis of courses will show that greater than 75% of majors will receive C or better. Student evaluations will show greater than 70% rate the instructor good or excellent. The Chair will rate faculty good or excellent in teaching and scholarship on annual evaluations.

Of those graduates seeking employment or advanced study in fields related to their degree program, 75 % will be successful.

Assessment Procedure: The Chair will evaluate teaching effectiveness and scholarship of each faculty member annually. The Chair or his designee will collect and monitor course syllabi, student evaluations, the grade analysis summary supplied by Institutional Research and Planning, and Alumni Survey results supplied by Career Services or Alumni Relations (or administered by the department if not by those offices).

Use of Assessment Data: A summary of student evaluations and the Chairs evaluation will be shared with individual faculty members. The Chair may visit classes and meet with faculty members whose evaluations do not meet expected outcomes. Measures to improve will be discussed and implemented. Course syllabi, Grade analysis data, and Alumni survey results will annually be shared with faculty committees monitoring each degree program. The committees will review the course syllabi to insure that the learning outcomes reflect the objectives of the department for each degree program. The committees will review the grade analysis and survey results and, should outcomes fall short of expected, determine areas of concern and submit a report with suggestions for improving effectiveness.

Goal 3: To maintain a faculty who stay current in their respective disciplines by engaging in a variety of scholarship activities which result in enhanced expertise, publications, updating of lecture and laboratory presentations, and general strengthening of the programs offered by the department.

Objective 3.1: The department will insure that faculty members participate in an appropriate level of scholarly activities.

Action 3.1.1: The department will provide all faculty members the opportunity to attend a scientific meeting at least once in the school year to keep abreast of the current state of the art of his/her specific discipline.

Action 3.1.2: The department will provide all faculty members the opportunity to participate in national teaching workshops and education conferences to acquire new and effective teaching methods and to network with other educators.

Action 3.1.3: The department will provide faculty members the opportunity to engage in scholarship activities related to the following situations: summers,

collaborations with industries and governmental research agencies, participation in bridge programs, mentoring student research or advancement.

Action 3.1.4: The department will provide faculty members the opportunity to present a seminar at least once a year on topics from the scientific meeting she/he has attended to share new information about his/her discipline with faculty and students.

Action 3.1.5: The department will encourage faculty members to be active in research and to present papers at meetings, publish in journals, submit articles on teaching strategies in newsletters, publish abstracts from meetings, and to participate in other forms of creative activity.

Action 3.1.6: The department will encourage faculty members to be active in writing grants, both for research and for institutional development.

Action 3.1.7: The department will encourage faculty members to direct the independent research of students with the goal of either an oral or poster presentation at a regional meeting

Action 3.1.8: The department will encourage faculty members to hold membership and actively participate in professional organizations.

Evaluation 3.1.1-8: The percentage of faculty attending scientific meetings, workshops, and conferences. The number of faculty engaged in summer research and/or sabbaticals in industry and governmental research agencies. The number of faculty who present seminars in the UNCP science seminar series. The number of faculty obtaining research and or institutional development grants and publishing results in professional journals. The number of faculty that direct student research projects. All faculty should be active in at least two of these areas during each academic year.

Assessment Procedure: All faculty will submit to the Chair an annual self-evaluation, which will report the scholarly activities that were performed. The Chair will review the faculty self-evaluations for scholarly activities.

Goal 4: The biology department will maintain a faculty who provide leadership and expertise that enhances the University's strength and educational reach in the region by participating in appropriate levels of service to the University and to the local communities.

Objective 4.1: The department will participate in activities that will strengthen the image and educational outreach of the University in the region

Action 4.1.1: The department will strongly encourage faculty to present at least

one guest lecture/workshop per year at/for a public institution in the region served by UNCP.

Evaluation 4.1.1.1: Documentation of presentation(s) and/or workshop(s) each year.

Action 4.1.2: The department will strongly encourage faculty to serve on various panels, boards, advisory committees, etc in the region/county/community/ pertaining to their area of expertise.

Evaluation 4.1.1.2: Documented community service and survey results indicating that the community has a greater awareness/contact with the biology department.

Assessment Procedure: The Chair during yearly evaluation shall confirm that each faculty member has given at least one guest lecture/workshop at/for a public institution of their choice each academic year.

Objective 4.2: The department will provide students with access to and experience with the latest in scientific information, biological technology and research through working partnerships and/or internships with other research agencies, industry, and outside agencies.

Action 4.2.1: The department will explore opportunities to initiate and develop cooperative arrangements in the form of partnerships and/or internships with research agencies, industry, and outside agencies.

Evaluation 4.2.1.1: Documentation of newly developing and/or established relationships/ partnerships/internships with research agencies, industry, and other outside agencies.

Assessment Procedure: The Department Chair will perform a yearly review to document the department's effort at developing and/or establishing new relationships with research agencies, industry and other outside agencies with the intent of establishing working partnerships and/or student internships.

Goal 5: The biology Department will provide programs and/or courses for students who are seeking initial licensure, lateral entry, licensure-only, and advanced licensure in the area of biology.

Objective 5.1: The department will provide a program of study for undergraduate students wishing to major in biology with teacher licensure.

Action 5.1.1: The coordinator for biology education working with the chair and members of the biology department will monitor the biology with teach licensure

program to insure compliance with state and national guidelines for initial licensure in biology.

Evaluation 5.1.1: At each accreditation cycle of the NC Department of Public Instruction (DPI) and NCATE, the Biology Education Program for initial licensure in biology will meet all state (DPI) and national (NCATE) standards for accreditation.

Assessment Procedure: Outside evaluation teams from DPI and NCATE will, on a regular basis, visit our campus for the purpose of reviewing our curricular areas in biology education. These teams will review documentation of program content that has been collected by the coordinator of biology education and members of the biology department. This review will determine compliance with state and national guidelines and competencies for biology with teacher licensure.

Objective 5.2: The biology department will provide individualized program plans based on individual needs of persons seeking lateral entry or licensure-only in the biology with teacher licensure program.

Action 5.2.1: The Biology Education Coordinator with School of Education designee will complete Individual Education Plans (IEPs) for persons seeking licensure-only or lateral entry in Biology with teacher licensure.

Action 5.2.2: The Biology Education Coordinator will serve as advisor to applicants for licensure-only and lateral entry.

Evaluation 5.2.1.1: Seventy-five percent of persons seeking biology with teacher licensure by way of licensure-only or lateral entry will complete the program of study as designed on the IEP and receive licensure.

Assessment Procedure: The Coordinator of Biology Education, and the Chair of the Biology Department along with the School of Education designee will review the numbers of students who complete the IEP programs and are recommended for licensure. Information on the completion rate and licensure recommendations will be shared with the biology department.

Objective 5.3: The Biology Department will provide graduate courses in biology for the Masters of Education in Science Education.

Action 5.3.1: The Co-Coordinator for the Masters of Education in Science Education along with the Chair of the Biology Department or his/her designee will monitor course offerings so that these courses maintain compliance with state and national standards for advanced licensure in biology.

Evaluation 5.3.1.1: At each accreditation cycle of DPI and NCATE, the courses

that compose the biology component of the Masters of Education in Science Education will meet all state (DPI) and national (NCATE) standards which are used to accredit education programs at an institution of higher education.

Assessment Procedure: Outside evaluation teams will, on a regular basis, visit our campus for the purpose of reviewing our curricular areas in science education. These teams will review documentation of course content that has been collected by the Co-Coordinator of the Masters of Education in Science Education program and biology department members. This review will determine compliance with state and national guidelines and competencies (standards) for the biology component of the Masters of Education in Science Education.

APPENDIX A

PROGRESS SINCE LAST REPORT
FUTURE NEEDS

1. PROGRESS SINCE LAST REPORT

The following is a point-form listing of activities that will enhance to performance of the Department of Biology's during the two-year interval since submission of the 2002-07 version of this report.

1. Participation in the PMABS grant program which has resulted in: a) the influx of hundreds of thousands of dollars to the department, b) the acquisition of a postdoctoral position as well as a full time faculty member, c) the creation of a VTC room and the introduction of smartboard technology to the department which has greatly enhance student learning.
2. The implementation of the environmental science degree in Fall 2004.
3. The completion of a three-year focused growth grant from the Office of the President of the UNC System to support the planning and implementation of the new environmental science degree program. This grant amounted to \$225,000 over three years.
4. The planning of an interdepartmental degree in Biotechnology with the cooperation of the Department of Chemistry and Physics. This program should commence in Fall 2006.
5. Completion of construction of a new wing on the science building that will provide more lab and office space for the Biology Department.

2. FUTURE NEEDS

The following is a point-form listing of the Department of Biology's needs (facilities, faculty, and funding) to accomplish the anticipated departmental growth over the planning period covered by this document (2004-09).

FACILITIES

1. Additional classroom space (2-4 rooms) in the range of 30-70 student sections will be needed to accommodate enrollment growth. Additionally, a new microbiology lab would be helpful.
2. Additional offices (4-8) will be needed to house anticipated new faculty.

3. As the department begins to emphasize undergraduate research, the need for personalized research space for faculty will become increasingly important. A possible solution would be the addition of a small office/personal lab wing to the science building in the next five years in order to meet the needs itemized above. Alternatively, the space currently occupied by UCIS could be renovated to this purpose if and when UCIS is relocated to a new facility.
4. Office, storage and teaching space will be needed at the tract of land purchased to support the environmental science degree program. It is anticipated that two to four offices, two storage rooms and two small teaching labs would be necessary.

FACULTY

1. An immunologist to support the proposed biotechnology degree program.
2. An additional microbiologist to support the nursing program and enrollment growth in the biomedical area.
3. A coordinator of undergraduate education to assist the chair in administering undergraduate degree programs.

FUNDING

1. The Biology Department will need increases in travel and supply funding from the institution to support new faculty and enrollment growth in all of its programs.