



## Unit Plan Annual Narrative

**Directions:** Use the "Unit Plan Narrative Guide Sheet" to complete this planning form. Be sure that under each section, you write a narrative which discusses all elements listed under each heading. If a particular element does not apply to your area, note that within your narrative. Again, this form should be completed as a narrative, not bulleted.

**Department/Unit: Natural Science & Mathematics**

**Unit Administrator: Dr. Karl Pruitt**

**Date: May 29, 2008**

### A. Unit Description

a. Connection of the unit to the institution's role and mission:

The Department of Natural Science and The Department of Mathematics were combined during the academic school year of 2001-2002. Prior to the 2001, academic calendar year the two departments were maintained separate, each with its own departmental chairperson. The tentative plans for the upcoming 2008-2009 academic year will have the combined departments be separated into two individual departments. The Department of Natural Science and Mathematics now includes the disciplines of biology, chemistry, mathematics, physics, and physical Science.

Department Mission: The faculty of the Department of Natural Science and Mathematics at Lawson State Community College believes that all students are important individuals who, although different from each other in background, talent, capability, and initiative, are entitled to an education that will enable them to realize their maximum potential both as individuals and as members of society. The Department is designed for students who plan on receiving an Associate in Science or Associate in Arts Degree in order to transfer to a four-year institution and pursue a Bachelor of Science degree in Biology, Chemistry, Mathematics, Natural Science, and other related fields of study. Moreover, a team approach is used in the development and planning of distant learning courses. Instructors are employees of the college and, as such, are just as accountable for the content and quality of instruction on or off campus. Also, in instructors are responsible for maintaining current course content and making adequate and timely revisions when necessary.

The Department mission is to incorporate various teaching methods and strategies to motivate students to achieve their maximum intellectual capability in the pursuit of their academic goals. The Department strives to develop innovative strategies that will strengthen the curriculum offered through the Natural Science and Mathematics. A comprehensive curriculum, instructional methods, and new technological procedures are designed to enhance students' critical thinking and problem solving skills. The continued success of Lawson State Community College and the Department of Natural Science and Mathematics is directly attributable to fulfilling the school's purpose and mission. In fact, our divisional programs provide high quality transfer and career curricula, continuing education, and community services in response to the local community and educational needs of our diverse student population. The Office of Institutional Research has concluded that a large percentage of our faculty strongly agree that the college programs of study are directed by a clearly defined statement which supports the College's mission statement.

The Natural Science & Mathematics Department is a rapidly advancing discipline whose curriculum designs and instructional presentation play a critical role in students' academic growth and maturity. Mathematics has always been an essential component in the Physical Sciences, Chemistry, and Physics programs. Further, Mathematics is extensively applied in diverse areas such as medical and biological research, environmental studies, management science, behavioral and social science.

### **THE DEPARTMENT OF NATURAL SCIENCE AND MATHEMATICS OBJECTIVES:**

Distance learning courses have been included into the curriculum of the Natural Science and Mathematics department. Distance learning courses are regulated by the same policies and standards as those courses conducted in classrooms on campus. Indeed, they share the same objectives and competencies:

1. To strongly increase the recruitment of qualified students into the varied programs that the department offers.
  - a. Increase college scholarship designed for science and health related majors.
  - b. Establish and maintain more bridge programs with four-year institutions such as Miles College and University of Alabama in Birmingham.
  - c. Encourage students to participate in more summer research programs related to Science, Math and Technology.
  - d. Provide College tours for regional high school students interested in Science and Math to visit our campus, meet our faculty in the department, and see our Science and Computer labs.
  - e. Develop a brochure that highlights the achievements of the Natural Science and Mathematics faculty and staff.
2. To increase the fiscal budget so the Department can hire more faculty and staff ( i.e. full-time Biology instructor, full time Mathematics instructor, part time laboratory assistant, and a departmental secretary ).
3. To increase the fiscal budget to allow for renovation of three more Science labs.
4. To encourage more faculty to attend at least four professional development workshops throughout the academic year.
5. To acquire 10 new laptop computers for the Math and Science adjunct faculty.
6. To purchase new equipment and supplies for the two new renovated labs in the Science Labs-- C-205 and B-125-- and to equip two Science labs on the Bessemer campus.
7. To purchase more Tegrity equipment for the implementation of more technology in the classroom.
8. To provide a tutorial program for Math and Science majors through the STEP-UP NSF Grant.
9. To encourage more students to participate in summer research programs and the STEP-UP program.
10. To provide students with the knowledge to assess and express scientific and mathematical ideas.

11. To develop methods for assessing students learning outcomes and degree program outcomes and aligned that data with the curriculum.
12. To provide students with the mathematical and scientific knowledge to transfer to other institutions of higher learning.
13. To teach students those mathematical and basic scientific concepts needed to successfully work in mathematics and health related areas.
14. To provide quality curriculum to ascertain that students develop an appreciation for scientific technology and for humanitarian and cultural values.
15. To provide a structured environment of advisement that will aid students in developing realistic academic goals.
16. To incorporate diverse teaching methodologies to enhance students learning.
17. To develop a standardized course outline, curricula, and grading policy within each program of study.
18. To foster strong community involvement and work force development by supporting local and state economic growth and by encouraging civic, cultural, recreational and service activities.
19. To develop a diverse array of academic, developmental, and support services to help in student retention, and increase the number of completers per degree and certificate programs.
20. To incorporate a research project for graduating Science and Math majors
21. To develop adequate pre-tests and post-tests to evaluate incoming Science and Math majors in their beginning Science and Math courses.
22. To develop pre-test in MTH100 /MTH112 and to evaluate Math students.

**b. Unit Achievements:**

The Department of Natural Science offers an Associate in Science degree, which requires the completion of 64 semester hours. In addition, the Department is actively involved in a bridge program with the University of Alabama at Birmingham where selected students can pursue a Bachelor's of Science degree. Those students can complete their junior and senior years in their related fields of study--Biology, Chemistry, Mathematics, Pre-Medicine, Pre-Pharmacy, Pre-Engineering, Pre-Dentistry, Medical Technology, and Physics-- through an established articulation agreement with U.A.B., Miles College, Birmingham Southern, Montevallo, Stillman College, Talladega College and other in-state four year colleges and universities.

**c. Instructional Units within your division:**

The Natural Science & Math Department have degree offerings in Biology and Mathematics. The Department also offers courses that support the General Education Degree programs. Since the merger. Course offerings in College Transfer Program have increased in number and enrollment.

## **B. Unit Effectiveness**

### **a. Staff Description:**

There are eight full-time faculty members in the Natural Science & Math Department. In the Fall, there were 11 adjunct faculty members teaching several classes ranging in the fields of Biology, Chemistry, Mathematics, Physical Science, and Physics. In the Spring, there were 11 adjunct faculty members teaching several classes in the Department. In the summer of 2008, there were 10 adjuncts and five full-time faculty members teaching Biology and Mathematics courses due to high enrollment and the need to support full-time employment for the full time faculty members of the newly merged Bessemer campus with Lawson State Community College. The ratio of full-time to part-time faculty members varies each semester based of the college enrollment.

### **b. Instructional Effectiveness / Student Success:**

The Natural Science & Math Department is one of service to the institution and to all departments within the academic area. The Department and the College provide tutoring services for students through Student Support Services and individual tutoring provided by faculty in the division. Further tutoring is provided through online support such as Criterion. The Department is leveraging for financial resources to purchase, at least 30 new computers to start a Natural Science and Mathematic Laboratory, a laboratory with highly trained tutors to ensure the success of our students. About 70% of students who receive an Associate in Science degree transfer to a four-year college/university. Since Summer 2007 up to Spring 2008, seventeen students have graduated from the Natural Science Division, and one student has graduated in Mathematics.

**Student Progress:** PLEASE REFER TO L- Drive REPORT FOR GRADE DISTRIBUTION FOR THE DEPARTMENT FROM FALL OF 2005-06 THROUGH SPRING 2008.

**College Transfer:** About 65% (2 of 3) of students that receive an Associate in Science Degree transfer to a four year college or University.

For the fall semester of 2007-2008 there were 609 students enrolled in Biology on the Birmingham campus. The Bessemer campus had an enrollment of 134 students. There were 283 students enrolled in Mathematics courses on the Birmingham campus and 106 enrolled on the Bessemer campus for the fall semester of 2007-2008.

### **c. Support Services Connection & Resource Availability:**

The Natural Science & Math Department is located in the Academic and Science Building where it shares 30 new computers with the Natural Science and Mathematics students to assist in their technology skill through the use of *I Can Learn*, a virtual lab. The laboratory contains a 45-inch TV monitor, an overhead projector, a VCR, and a DVD system. The Natural Science and Mathematics Department had installed five (5) new LCD projectors in B111, B-121, C-105, C-100, and C-200. The Natural Science and Mathematics students also have access to the developmental laboratories for use of the computers to assists in their writing and technology skills. There are several resources available in the Library to assist the Natural Science and Mathematics Students. There are several classrooms on the B-Hall and C-Hall with an average seating capacity of 35 students per classroom.

All full-time faculty members have access to technology through laptop computers and LCD projectors in classrooms. Most classrooms have internet access. Therefore, instructors are able to use that form of technology in the classroom.

## **C. Value Added**

a. Strengths: The strength of the Natural Science & Math Department can be observed through student performances on lectures, exams, quizzes, laboratories and the demonstration of competence while advancing through various course curricula. The department strength will be mainly attributed to the enthusiasm, professionalism, commitment, intelligence, and dedication of the faculty members to students and to the mission of the college and the support of adjunct faculty. The demand for office space is a strong indicator of how fast the department of Natural Science & Math is growing in terms of faculty and students. Other strengths include the following:

### **AREAS THAT NEED IMPROVEMENT:**

1. The program needs more full-time faculty in the area of biology and mathematics.
2. The program also needs to purchase equipment and supplies more fiscal resources will be required.
3. The program needs two computerized classrooms and a writing laboratory.
4. There is a need for tutorials in the area of Biology, Chemistry, Mathematics, and Physics.
5. The program needs a new Biology instructor for the Bessemer campus, based on increased enrollment.
6. The faculty members' offices need to be remodeled and furnished to allow easy access to teaching materials and to provide a much more stimulating environment.
7. There is a need for technology training in Blackboard and Tegrity.
8. The program needs to develop a technology committee for college transfer programs.
9. Adjuncts need laptops, so they can efficiently and regularly use LCD projectors in the classroom.
10. The college needs to turn the B-Hall and C-Hall into wireless entities and activate internet sites in classrooms.
11. Full and part-time faculty need to implement Blackboard as part of the continuous evaluation process of students' papers and grades in the natural Science and Mathematics Department.

The program needs to implement more computer technology assistance and support in the Natural Science & Math Department and learning resource tools, such as video equipment, TV's, audiovisual aids, and more computer software to assist students in terms of grammar, sentence structure, style, critical thinking and, problem solving skills

### **d. Departmental or Unit Needs:**

It would be helpful to have efficient computers in the laboratory, with a dedicated assistant who will have administrative access to the network

**e. Recommendations:**

The Department of Natural Science and Mathematics needs more instructors to meet the Growing needs of the student population on two campuses. In addition, the department needs more fiscal resources to implement more course offerings between two campuses. Further, the Department needs more financial resources to maintain technology in the instructional delivery of materials by faculty members.

The Department of Natural Science and Mathematics has greatly improved its intellectual climate over the past several years. However, in order to ensure continuous high quality of instruction and sound institutional programs, the department will attempt to implement and complete the following plans:

1. Provide a seamless transition into four-year institutions.
2. Provide continuous quality instruction.
3. Support the development of a technology-integrated curriculum.
4. Hire full time faculty members for Biology and Mathematics.
5. Develop online course offerings in Mathematics (Distance Learning offerings and Hybrid Courses. Hardware and software is needed
6. Hire a full-time Computer Laboratory Assistant.
7. Hire tutors for the Sciences Laboratory (short-term and long- term goal) through STEP-UP Grant.
8. Renovate the science labs in room C-203, C-204 and C-207.
9. Establish dual-enrollment, articulation agreements with local high Schools and four-year institutions.
10. Provide greater access to highly motivated scholastic achievers in Natural Sciences and Mathematics and enhance enrollment in the Department.
11. Seek funding to increase faculty development and grant procurement.
12. Increase faculty involvement in the community.
13. Encourage full-time faculty to continue their professional growth plan at the college.
14. Purchase more Tegrity equipment, LCDs and/ or White Boards to enhance the delivery of instruction in the classroom

**D. Projections**

a. Staff needs:

The Natural Science and Mathematics Department needs an additional instructor.

b. Resources needs:

c. Professional development needs:

d. Other (if applicable):

## Institutional Effectiveness Unit Plan

**Directions:** Use 9 point font when completing this form. First, complete columns A-D. Make sure your Unit Outcomes are targeted, essential and measurable. Columns E & F (which serve to assess whether your goals were reached and how you intend to use the results) will *not* be completed until the end of the cycle in the spring.

Unit : **Natural Science and Mathematics**  
2008

Unit Administrator: **Karl Pruitt**

School Year: **2007-2008**

Unit's Mission: Although Lawson State Community College enrolls a diverse student population, the faculty of the Department of Natural Science and mathematics believe that all students are capable and entitled to an education that will enable them to achieve their maximum potential both as individuals and as members of society.

<b>Number each Outcome in each column</b>	<p><b>A. Unit Outcomes (3-4) <i>no more</i></b></p> <p>Should be measurable. Use percentages where possible. <u>Be brief.</u></p> <ol style="list-style-type: none"> <li>1. Maintain an infrastructure that unifies efforts of faculty from other colleges/universities who are committed to science and mathematics education. To increase partnerships with other four year institutions.</li> <li>2. Actively encourage and provide for the continual updating of professional development in-service material for science and mathematics teachers with current advancement in technology.</li> <li>3. 100% of full and part-time Faculty in the Natural Science Department will incorporate syllabi, assignments, and grades on Blackboard.</li> <li>4. Increase the number of science and mathematics courses offered on the Bessemer Campus to give students more opportunities to achieve there academic goals in timely manner.</li> </ol>	<p><b>B. Outcomes Link to Institutional Goals &amp; Strategic Indicators</b></p> <p>List the goal numbers and the corresponding Strategic Indicator letters (i.e., Goal 1; Indicators B &amp; C; Goal 2; Indicators A-C, etc.)</p> <ol style="list-style-type: none"> <li>1.Goal 1; Indicator A-D Goal 2; Indicator A,B,C,F,&amp; G Goal 6; Indicator A,B,C,&amp;F</li> <li>2.Goal 3; Indicator A-D Goal 6; Indicator E,&amp; F</li> <li>3.Goal 1; Indicators A-E</li> <li>4. Goal 1; Indicator A,B,&amp;C Goal 3:Indicator A-E</li> </ol>	<p><b>C. Methods of Assessing the Outcome</b></p> <p>List what indirect methods you plan on using to measure each outcome (i.e., board exams, surveys, graduation results, retention results, etc.)</p> <ol style="list-style-type: none"> <li>1. This goal can be address through the development of collaborative meetings with different instructors and Departmental Heads from senior institutions.</li> <li>2. This goal can be address through professional development workshops. Maintain Common Core programs in both science and mathematics, provide additional opportunities for teachers to gain access to resources; lesson plans, and have in-service workshops on new educational technologies. (i.e. Tegrity and Blackboard training.)</li> <li>3. This goal can be measured through obtaining data from the Blackboard Administrator and the Blackboard non-usage data.</li> <li>4. This goal can be measured through student degree plan evaluation by advisors. Pass/Fail ratio data obtained from the grade distribution data listed on the Global suite. Course offering can be obtained from the AS400 such as INSI and CUPTS data.</li> </ol>	<p><b>D. Budget Implications</b></p> <p>If your outcome has budget implications (costs that will exceed \$499), list them here.</p> <ol style="list-style-type: none"> <li>1. To increase the Fiscal budget to cover the cost of implementing surveys, and develop brochures and program materials to be disseminated to other professional science faculty.</li> <li>2. To increase the fiscal budget to purchase materials and supplies to maintain a academic aggressive curriculum in the natural science department.</li> <li>3. To increase the fiscal budget to hire more qualified instructors, and provide more opportunities for current faculty to attend professional development workshops to remain current with new technology and new innovative teaching methodologies.</li> <li>4. To increase the fiscal budget to purchase adequate science equipment and current mathematics equipment and hire more qualified faculty to meet the growing demand of the Natural Science Department.</li> </ol>
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**Unit Plan--Part II: Directions:** As noted on page one of this plan, complete columns E & F at the end of the planning cycle in the spring. As you report under each column, be sure to carry over the numbers which represent each outcome you are addressing.

**E. Actual Results Obtained—When you assessed and measured your stated outcomes, what results did you find? Be clear and concise in your reporting.**

1. 100% of science and mathematics faculty are interacting with other science and math teachers at other colleges and universities to exchange ideas relating to new and innovative teaching methodologies a total of two colleges are involved, including Miles College and Talladega. Three Lawson State Community College students enrolled in a Quality Management Course at Talladega College and participated in a research project which was presented at a National Science Foundation Meeting. One student enrolled as a transfer student at Miles College in their Biological Science Program with a scholar ship based on her GPA from Lawson State.
2. 100% of the science and mathematics faculty have attended professional development workshops to remain current with new ideals in science and mathematics. Some of the science faculty presented at professional conferences this academic year of 2007-08. Four science instructors and four mathematics instructors attended professional development workshops throughout the year.
3. 100% of Natural Science Faculty incorporates some form of technology into the classroom, as well as utilizes Blackboard through the semester. The Blackboard usage document indicates which instructors are not compliant with Blackboard. Four sciences instructors and Four mathematics instructors are compliant with Blackboard usage.
4. Increase the number of Biology courses on the Bessemer Campus by 50% from Fall 06-07 through Fall 07-08, with a 51% increase in student enrollment on that campus. The number of Mathematics course offerings on the Bessemer Campus remained constant with 8 classes. The enrollment decreased by 26% in Mathematics courses from Fall 06-07 through Fall 07-08.

**F. Use of findings—Now that you have your results, how do you intend to use these results or, if implemented early, how have you used these results to improve your overall unit for the upcoming academic year? **NOTE** After you list how you intend to use these results, be sure to include such improvements in your new Unit Plan for the upcoming academic year.**

1. To develop and implement an instructor workshop with local instructors from regional high schools, colleges, and universities to discuss different and innovated teaching strategies. To organized a working meeting with the lawson state MIS department to develop an online survey for faculty.
2. To provide more fiscal resources to ensure that faculty can continue to attend more professional development workshops.
3. Purchase more scientific equipment to ensure that a high level of instructions continues in the natural science department. To hire more qualified mathematics and biology instructors to maintain the academic integrity and curriculum of the department.
4. To incorporate different teaching styles in the classroom and laboratory to ensure that students are getting a good understand of the material being delivered.