Unit Assessment Plan

College of Science and Technology

Bachelor of Science in Chemistry

Introduction

Texas Southern University's Mission

Texas Southern University is a comprehensive metropolitan university. Building on its legacy as a historically black institution, the university provides academic and research programs that address critical urban issues and prepare an ethnically diverse student population to become a force for positive change in a global society.

In order to achieve this mission, Texas Southern University provides:

- quality instruction in a culture of innovative teaching and learning
- basic and applied research and scholarship that is responsive to community issues
- opportunities for public service that benefit the community and the world.

Texas Southern University's Vision

Texas Southern University will become one of the nation's pre-eminent comprehensive metropolitan universities. We will be recognized by the excellence of our programs, the quality of our instruction, our innovative research, and our desire to be a contributing partner to our community, state, nation, and world.

Accreditation Standards

Accreditation by Southern Association of Colleges and Schools Commission on Colleges (SACS) Commission on Colleges signifies that the institution: (1) has a mission appropriate to higher education, (2) has resources, programs, and services sufficient to accomplish and sustain that mission, and (3) maintains clearly specified educational objectives that are consistent with its mission and appropriate to the degrees it offers, and that indicate whether it is successful in achieving its stated objectives.

Source: The Principles of Accreditation: Foundations for Quality Enhancement, 5 th edition

Goal 1 Assessment Plan 2010-11 to 2012-13

1 Goal Description

Students will obtain knowledge & understanding of the theoretical basis of chemistry

2 SLO Student Learning Outcomes/Objectives

Students will be able to connect observations with prior information as demonstrated through embedded question on the ETS MFT examination.
â¢ Prediction of chemical reaction products
â¢ Identification of chemical reaction products
Students will be able to explain the physical and chemical properties of substances based on an understanding of atomic and molecular structure as demonstrated through embedded question on the ETS MFT examination.
â¢ Explanation of physical properties
â¢ Explanation of chemical properties
Students will perform quantitative calculations using experimental data as demonstrated through embedded question on the ETS MFT examination.
â¢ Selection of an appropriate theoretical relationship/equation for data analysis
â¢ Completion of quantitative calculations
â¢ Explanation of the significance and/or validity of the results.

3 Metric

2010-11
Embedded Questions on the Physical Chemistry Exam

4 Target 2010-11

All students will achieve a minimum score of 70%

5 Findings 2010-11

80% of students scored at 70% or above on comprehensive examination in physical chemistry ((10 out of 12 students)

6 Action Plan 2010-11

Continued assessment to determine strengths and weaknesses of the Chemistry program.

7 Target 2011-12

60% of the students will achieve a minimum score of 70%

8 Findings 2011-12

78% of students scored at 70% or above on comprehensive examination in physical chemistry
(14 out of 18 students)

9 Action Plan 2011-12

Continued assessment to determine strengths and weaknesses of the Chemistry program.

10 Target 2012-13

60% of students will rank in the 50 percentile or higher on ETS-MFT examination

11 Findings 2012-13

65% of students scored at 70% or above on comprehensive examination in physical chemistry
((13 out of 20)

12 Action Plan 2012-13

Continued assessment to determine strengths and weaknesses of the Chemistry program.

13 Additional Reference Documents

2010-11, 2011-12, 2012-13
Physical Chemistry Exam Results Summary

2011-2012 Scores [XLSX 12 KB 10/2/15]

2012-2013 Scores [XLSX 12 KB 10/2/15]

Goal 2 Assessment Plan 2010-11 to 2012-13

1 Goal Description

Students will understand concepts of laboratory experience

2 SLO Student Learning Outcomes/Objectives

Students will demonstrate the understanding and ability to carry out laboratory procedures effectively and safely as demonstrated through embedded question on the ETS MFT examination.
â¢ Explanation of the purpose of the steps in a laboratory procedure
â¢ Use of standard laboratory equipment and instrumentation properly and safely.
Students will collect, analyze and draw relevant conclusions from experimental data as demonstrated through embedded question on the ETS MFT examination.
â¢ Collection & organization of relevant data.
â¢ Analyze experimental data appropriately.
â¢ Interpretation of processed data
â¢ Identification of experimental errors.
Design procedures appropriate to the goal of an investigation as demonstrated through embedded question on the ETS MFT examination..
â¢ Selection of a suitable experimental approach
â¢ Modification of the approach to optimize the experimental outcome.

3 Metric

CHEM 412 Laboratory Examination Scores

4 Target 2010-11

60% of students will receive 70% or higher on laboratory examinations

5 Findings 2010-11

86% of students received a 70% passing rate on laboratory exams

6 Action Plan 2010-11

Work with TAs to improve the delivery and understanding of experiments performed

7 Target 2011-12

60% of students will receive 70% or higher on laboratory examinations

8 Findings 2011-12

100% of students received a 70% passing rate on laboratory exams

9 Action Plan 2011-12

Work with TAs to improve the delivery and understanding of experiments performed

10 Target 2012-13

60% of students will receive 70% or higher on laboratory examinations

11 Findings 2012-13

100% of students received a 70% passing rate on laboratory exams

12 Action Plan 2012-13

Work with TAs to improve the delivery and understanding of experiments performed

13 Additional Reference Documents

Chemistry Laboratory Scores

Goal 3 Assessment Plan 2010-11 to 2012-13

1 Goal Description

Students will understand application of quantitative reasoning skills & apply critical thinking to problem solving

2 SLO Student Learning Outcomes/Objectives

Students will learn to organize relevant information for analysis as demonstrated through embedded question on the ETS MFT examination as demonstrated through embedded question on the ETS MFT examination..

â¢ Identification of critical data elements necessary to understand the problem.
â¢ Identification of applicable theories and/or mathematical relationships.
Students will calculate quantitative values and/or formulate an explanation of observations as demonstrated through embedded question on the ETS MFT examination as demonstrated through embedded question on the ETS MFT examination.
â¢ Application of theories to illustrate how observations can be understood
â¢ Application of equations to determine mathematical values with appropriate significant figures and units
Students will draw conclusions from quantitative values and/or experimental observations as demonstrated through embedded question on the ETS MFT examination as demonstrated through embedded question on the ETS MFT examination.
â¢ Correlation of quantitative results to chemical and/or physical properties of the system.

3 Metric

2010-11
Embedded Questions on CHEM 432 Physical Chemistry exam

4 Target 2010-11

All students will achieve a minimum score of 70%

5 Findings 2010-11

83% of students scored at 70% or above on comprehensive examination in physical chemistry (10 out of 12 students, 83%, scored grades of âCâ or better)

6 Action Plan 2010-11

Seek input from professors on improved delivery of course content

7 Target 2011-12

60% of students will rank in the 50 percentile or higher on ETS-MFT examination

8 Findings 2011-12

78% of students scored at 70% or above on comprehensive examination in physical chemistry
(14 out of 18 students, 83%, scored grades of âCâ or better)

9 Action Plan 2011-12

Seek input from professors on improved delivery of course content

10 Target 2012-13

60% of students will rank in the 50 percentile or higher on ETS-MFT examination

11 Findings 2012-13

65% of students scored at 70% or above on comprehensive examination in physical chemistry
((13 out of 20)

12 Action Plan 2012-13

Seek input from professors on improved delivery of course content

13 Additional Reference Documents

2010-11,2011-12, 2012-13
Physical Chemistry Exam Results Summary