

Assessment: Assessment Plan

Degree Program - GRAD - Biotechnology (MS)

CIP Code: 26.1201.00

Disciplinary Accrediting Body: SACSCOC

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Program Purpose Statement: The major focus of the Biotechnology M.S. program offered by the Center for Biotechnology and Genomics is to integrate knowledge gained from formal and hands-on coursework during the first year of the program with applied technical skills and sound scientific inquiry during the experiential internship or thesis project during the second year of the program. Research opportunities and coursework are offered in a variety of areas, such as recombinant DNA technology, genomics, proteomics and bioinformatics, and are interdepartmental in scope, providing flexibility and cutting edge learning opportunities. The program capitalizes on highly productive teaching and research partnerships in both the basic and applied sciences and strong cooperative ties have been forged with academic institutions, federal laboratories, and public and private companies in Texas and throughout the region.

Modality: Face-to-Face

Student Learning Outcome: Knowledge

Upon completion of the degree, students should be able to:

1. Demonstrate knowledge on the fundamental concepts in biotechnology.
2. Summarize the discoveries and major contributions of biotechnology to the society.
3. Outline the scientific disciplines that contributed to the biotechnology revolution.
4. Demonstrate the knowledge of data collection, data compilation, scientific report writing and presentation.

Outcome Status: Active

Outcome Type: Student Learning

Start Date: 09/01/2016

Assessment Methods

Post-Test - Students will take diagnostic test at the beginning and end of the first semester. Students will be evaluated based on their performance on the diagnostic test.

(Active)

Criterion: Must score 80% or more in the second diagnostic test. Students scoring under 80% on the diagnostic will receive assistance to strengthen their knowledge base, and will take another diagnostic test at the end of the second semester. They must score higher than 80% to be eligible for the second year research experience (internship or thesis) of the program.

Schedule: Before they begin the program (before first semester), After the first semester and if necessary after the second semester.

Master's Comprehensive Exam - Students will demonstrate overall general and specific knowledge in the subject matter.

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Students will be assessed according to a rubric, which has been developed by the committee. The comprehensive examination has three components: a written research report (research leading to internship or Master's thesis) or capstone project report (non-research option), oral presentation and oral examination. (Active)

Criterion: An overall score of 80% or more must be obtained. If not, the examination will be re-scheduled after giving the student time to review and prepare better for the comprehensive examination.

Schedule: Middle of April

Student Learning Outcome: Application

Upon completion of the degree, students should be able to:

1. Demonstrate the knowledge of their technical and transferable skills in their research project.
2. Demonstrate the knowledge and skill to design and execute the research project.
3. Apply both theoretical and practical knowledge and technical skills to carry out the experiments.
4. Compile, compute and analyze data and derive information.

Outcome Status: Active

Outcome Type: Student Learning

Start Date: 09/01/2015

Assessment Methods

Student Projects - Research appraisal seminar at the end of third semester where students present progress of work done in their internship or thesis projects. Students will be assessed according to a rubric which has been developed by committee for assessing successful progress and application of knowledge and skills in their research projects. (Active)

Criterion: The evaluation instrument will provide information on areas of strengths and weaknesses, and allow targeted feedback to students and research mentors. Must score 80% or more

Schedule: Second week of December

Oral exam - Students will be graded according to a rubric, which has been developed by the committee. The assessment will be based on students' answering questions from their research/capstone project and overall course works in the program. (Active)

Criterion: Must score 80% or above to pass the exam. If the results of this assessment are below 80%, the committee will provide feedback on what is missing and how to improve it.

Schedule: Second week of April

Student Learning Outcome: Synthesis

Upon completion of the degree, students should be able to:

1. Demonstrate their ability to integrate knowledge, skill and ability to purpose new idea(s) to solve complex scientific problems.
2. Design scientific experiments to generate meaningful data.
3. Summarize the results and present it to general audience.
5. Integrate transferable and technical skills for successful job placement.

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Outcome Type: Student Learning

Start Date: 09/01/2015

Assessment Methods

Performance - Students will give their final oral presentation to a committee and general audience. Students will also write a internship report or thesis. A rubric will be developed to assess the student's demonstration of successful integration of knowledge and skills into devise of scientific hypothesis and communication of experimental results. (Active)

Criterion: If the results of this assessment are below 80%, the committee will provide feedback and helpful critiques. Students must repeat the oral presentation and if necessary rewrite the report.

Schedule: Middle of April

Employment - Efforts will be made to track successful employment after graduation, with at least 90% employed in biotechnology/science positions or pursuing continuing educational goals. (Active)

Criterion: If less than 90%: Re-evaluation and updating of curriculum to provide the most current curriculum; continue to expand partnerships for the best research project and employment opportunities.

Schedule: Continuous effort after data analysis