

**Biology Department Academic Assessment Plan
(Student Learning)
UPRM
March /2013- 2017
Revised October 2015**

**Prepared by Biology Department
Assessment Committee
Luis A. Ríos Hernández, Vivian Navas, Duane Kolterman, Carlos Rodríguez**

Biology Department

The Biology Department Vision

El Departamento de Biología del Recinto Universitario de Mayagüez de la Universidad de Puerto Rico habrá de alcanzar los niveles más altos en la educación superior de Puerto Rico, dirigiéndose al desarrollo de la tecnología, a una continua revisión y constante expansión de los programas educativos y a la modernización de su infraestructura.

The Biology Department Mission

El Departamento de Biología desarrollará en cada profesor y alumno el pensamiento crítico, el entusiasmo, la iniciativa y las destrezas necesarias para que sea un eterno estudioso de la Biología. Se hará énfasis en los conceptos básicos y la investigación en un ambiente que promueva el desarrollo de profesionales con sensibilidad social, cultural y humanística, y con profundos valores éticos. Así aportará al enriquecimiento de la ciencia y la sociedad mediante la creación y diseminación de nuevo conocimiento a través de la investigación científica.

Biology Student Learning Outcomes (Graduating Biology Student Profile)

(Approved by the faculty)

The Biology Department Programs aim to develop graduates with the following skills and values, as well as with proficiency in the following scientific concepts:

Skills and Values

1. Critical thinking and problem solving skills through the scientific method
2. Team working skills
3. Communication skills in Spanish and English
4. Computer literacy and its scientific applications
5. Knowledge of up-to-date scientific tools and techniques
6. Awareness of contemporary scientific issues
7. Awareness of ethical implications in science
8. Ability to learn by him/herself (lifelong learners)

Scientific concepts

9. Cell structure and physiology
10. Organismal biology (zoology, botany and microbiology) with emphasis in tropical environments.
11. Genetics: classical, population and molecular
12. Chemical, physical and mathematical applications to biology
13. Ecology: Interrelationship among organisms and its environment, population, ecology, biodiversity and conservation biology
14. Evolution as a unifying science

Biology Department Assessment Plan

Undergraduate Program:

- 1) Analyze **four required courses** (Gen Biol I and II, genetics, seminar) regarding Arts and Sciences learning objectives development (collect info from faculty and student) to determine weaknesses and take proper action.
- 2) Analysis of surveys from **graduating seniors** (exit Survey) regarding biology courses and laboratories, research opportunities and learning objectives development to determine weaknesses.
- 3) Evaluate “**bottleneck courses**” to determine course of action (tutorial, study sessions, advising, etc.).
- 4) Analyses of the annual **undergraduate research symposium** to determine its effectiveness in developing research and communication skills in students and to assess the quality of the research experiences available to our undergraduates.

Graduate Program:

- 1) Analyses of graduate student enrollments, degree program progress, GRE correlation with success in graduate program, exit survey to determine where they go after graduation.

Biology Department Assessment Timeline (2014-2016)

Jan-May 2014

- Disseminate learning objectives among faculty and lab coordinators.
- Collect all assessment data from faculty and lab coordinators.
- Collect all administrative assessment data from director and administrators.
- Collect from faculty and laboratory coordinators data regarding which Arts and Sciences learning objectives are included and assessed in the 4 required courses (Gen Biol I and II, genetics, seminar).
- Assess the undergraduate research symposium regarding communication and research skills development and undergraduate research quality.
- Collect from students data regarding which Arts and Sciences learning objectives they developed in the 4 required courses (Gen Biol I and II, genetics, seminar).
- Offer Exit survey to graduating seniors and/or Charles Darwin candidates on department course and learning objectives.

Aug-Dec 2014

- Determine bottleneck neck courses in department.
- Analyze data from faculty and students regarding Arts and Sciences objectives and give results to faculty to gather evidence and take proper action (ex. Determine strengths and weakness; add identified objectives to course syllabus in the four courses).
- Offer exit survey to graduating seniors and/or Charles Darwin candidates on department course and learning objectives.

Jan-Dec 2015

- Inform the faculty of assessment findings.
- Expand the Arts and Sciences learning outcomes project to other required biology courses (faculty and students).

- Take actions based on assessment results (ex. Modify syllabus to include objectives).
- Assess the undergraduate research symposium regarding communication and research skills development
- Return results to faculty and take action..
- Analyses of Bottleneck courses project and proper actions.
- Collect information on graduate program
- Collect all assessment data from faculty and lab coordinators.
- Collect all administrative assessment data from director and administrators

Jan-Dec 2016

- Inform the faculty of assessment findings.
- Assess the undergraduate research symposium regarding communication and research skills development
- Return results to faculty and take action.
- Exit survey to graduating seniors and/or Charles Darwin candidates on department course content and learning objectives
- Offer an assessment workshop to the faculty and laboratory coordinators of the 4 core courses to develop activities that evidence the results.
- Analyze the directors administrative assessment answers for (middle states) to determine weaknesses and take proper action.
- Collect all assessment data from faculty and lab coordinators.
- Collect all administrative assessment data from director and administrators
- New assessment projects based on previous projects.

Correlation of Biology Program Outcomes with Arts and Sciences Learning Outcomes

Biology Student Learning Outcomes

Skills and Values

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Faculty Arts and Sciences Learning Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Oral and written effective Communication.			X											
Think critically	X													
Develop knowledge and skills related to their field of study and apply them to the identification and solution of problems.	X													
Apply mathematical reasoning.	X											X		
Apply scientific research methods.	X	X			X							X		
Apply information technologies.				X										
Recognize the ethical implications of different actions and integrate ethical codes in decision-making.							X							
Demonstrate respect for nature and the environment in Puerto Rico.										X			X	
Be knowledgeable about Puerto Rican heritage and culture.											X		X	
Appreciate the values of a democratic society and the role of the individual in such a society.														
Understand contemporary social, political, and economic issues in a local and global context.						X								
Demonstrate respect for human diversity in all its dimensions.											X			
Develop an appreciation for the humanities, the arts, and the sciences.														
Be committed to improve the quality of life at the personal and the community level.								X						