

Periodic Review Report

**Presented by:
UNIVERSITY OF PUERTO RICO-MAYAGUEZ
Mayaguez, PR 00681**

June 15, 2010

**Prepared by:
Dr. Pedro Resto, Director
Office of Continuous Improvement & Assessment (OMCA)**

**Chief Executive Officer:
Dr. Jorge Rivera-Santos
Acting Chancellor**

Recent visits:

Date of decennial evaluation team's visit: March 6-9, 2005

Chair of the Evaluation Team: Dr. Carlos Hernández

Date of special evaluation team's visit: March 13-14, 2008

Chair of the Evaluation Team: Dr. Ricardo R. Fernández

1. EXECUTIVE SUMMARY

This report summarizes the activities in progress pertaining MSCHE accreditation since the visit, held in March 6-9, 2005. The highly positive results from the Special Evaluation Team visit held in March 13-14, 2008 are summarized to evidence the assertive activities in progress during the first three years after the initial visit. In Section 3, the report discusses six (6) major challenges and/or opportunities, three of which are internal to UPRM and three that must be worked with the UPR System Central Administration.

A major activity in progress at this moment is the first budget reduction for the UPR System, which has an effect on the eleven Campuses. The UPR System president, Dr. José R. de la Torre and the UPR System Board of Trustees are working in defining the UPR System budget, to be presented in the near future to the state Legislature. UPR Mayaguez is well positioned to surpass the identified challenges since its programs make it the most appealing campus on the island, including all public and private universities. Recent enrollment figures provide evidence of this reality; this issue is discussed in Sections 4 and 6. Even with all the current challenges, the future looks bright for our Campus!

Section 5 provides detailed information on the organized and sustained activities to assess institutional effectiveness and student learning. A strategic activity from the previous strategic planning cycle is the attainment of program accreditation from recognized institutions that complement MSCHE. Detailed information is provided for the four Colleges, General Education, and other Campus-wide efforts.

Section 6 presents the budget figures for the coming year. It is assumed that these estimates should remain steady for the following two years. With improvements envisioned to the current financial software, resolution will be provided to operational versus strategic allocations.

2. SUMMARY OF INSTITUTION'S RESPONSE TO RECOMMENDATIONS FROM THE PREVIOUS TEAM REPORT AND INSTITUTIONAL SELF-STUDY

Two findings resulted from the MSCHE's 2005 visit to UPR's Mayaguez Campus. The findings were:

1. Development and implementation of a comprehensive institutional strategic plan which links long-range planning to decision-making and budgeting processes.
2. Progress made in the implementation of comprehensive institutional assessment and student learning assessment plans.

The institutional Monitoring Report, dated March 28, 2007, responding to MSCHE findings was prepared by Drs. Anand Sharma and Sandra Dika, at that time working for UPRM's Office of Continuous Improvement and Assessment (OMCA). The report can be reviewed at:

<http://www.uprm.edu/omca/Reports/PDF/FINAL.pdf> .

MSCHE requested a follow-up visit to oversee the progress described in the 2007 Monitoring Report. A special evaluation team visited UPRM in March 2008. The team was composed by Dr. Ricardo R. Fernández, president of Lehman College in New York, Dr. Michael Mogavero, Vice President of Edinboro University in Pennsylvania, Dr. Joseph E. Gillespie, Dean of Neumann College in Pennsylvania, and Ms. Dawn Ewing Morgan, Chief of Staff for Lehman College in New York. The results of this visit were highly positive since evidence was presented on both, the linkage between the strategic plan and the budgeting process, as well as the Campus-wide initiatives focused on assessment and student learning.

The information presented to the visiting team can be reviewed at:

http://www.uprm.edu/omca/news/MSCHE_Follow-up2008/presentations.php and the final remarks from the chancellor following the visit can be reviewed at:

http://www.uprm.edu/omca/news/MSCHE_Follow-up2008/msche_informe_final.pdf .

The Campus-wide activities related to these two findings from the 2005 visit have continued. Regarding the first finding, the strategic planning activities focused on the next planning cycle are described in Section 3.2 (Next strategic planning cycle) while the information system tools to support decision-making and budgeting are being addressed in activities described in Section 3.3 (Information system integration for the resolution of strategic versus operational funds allocation). The activities related to

the second finding have continued strong, and the ongoing progress in assessment and student learning is described in Section 5.

3. NARRATIVE IDENTIFYING MAJOR CHALLENGES AND/OR OPPORTUNITIES

This section presents the top six (6) issues for UPR Mayaguez, starting with the most important. Three of these challenges are internal to UPR Mayaguez (Sections 3.2, 3.4 and 3.5) and the other three (Sections 3.1, 3.3 and 3.6) require the participation of the UPR System Central Administration to achieve the desired improvement.

3.1 Responding assertively to the budgetary crunch

By law, the UPR System receives 9.6 percent of the average of the two prior fiscal year incomes received by the state’s Treasury Department. This source of income is called "the UPR-formula funds" and it represents about 79% of UPR's total income; other sources of income are a portion of the proceeds from gambling taxes, registration and other student fees, interests from UPR investments, indirect costs related to research activities, UPR enterprises, and ARRA funds. The island’s economy has been impacted by the global economic recession and by the transfer of businesses - mainly multi-national subsidiaries doing manufacturing here in Puerto Rico - to other regions of the world. Thus, the Treasury income has eroded, reducing the funds available for UPR Mayaguez.

The following table shows the UPR-formula funds and the budgets assigned to UPR-Mayaguez during the last six fiscal years. The second column presents the funding assigned to the UPR System, the fourth column presents the slice given to UPR Mayaguez Campus and the last column presents the percentage change between successive years.

UPR-Formula Funds and Budget Assigned to UPR-Mayaguez

Academic year	UPR-formula funds		Total UPRM Budget	
	Amount (\$K)	Change (%)	Amount (\$K)	Change (%)
04-05	\$683,448		\$138,454	
05-06	\$752,083	10.0%	\$150,132	8.4%
06-07	\$789,100	4.9%	\$157,781	5.1%
07-08	\$819,301	3.8%	\$166,328	5.4%
08-09	\$835,104	1.9%	\$172,492	3.7%
09-10	\$724,300	-13.3%	\$159,498*	-7.5%

(*) Includes ARRA funds.

The budget for future years will depend on future state's Treasury Department income and the funding that the next strategic planning cycle (Section 3.2) will bring. Currently, the UPR-Mayaguez administration is evaluating several alternatives to deal with this reduction of income, including reductions in operational expenses identified as unessential, consolidations of administrative offices and academic departments, and the identification areas of opportunities for additional income. Moreover, our Campus is already conducting and planning to expand activities to generate additional income from applied research, projects in the private and government sectors, and entrepreneurship initiatives. Examples of these initiatives are a) the Agro Industrial Innovation and Technology Center (CITAI for its name in Spanish), b) the Bio-Process Development and Training Center (BDTC), and c) the UPRM Model Factory. UPR Mayaguez is the only organization in the island with a wide range of expertise in the critical areas that are so relevant for the island economy: agricultural sciences, life sciences, engineering, and business.

3.2 Next strategic planning cycle

A new cycle for UPRM's Strategic Plan is in progress (for the period 2010-16) since the previous strategic plan period covered 2003-09. The new horizon is motivated by the need to align with the UPR System strategic plan. The UPR System strategic plan, known as Ten for the Decade (10x10), was defined in 2006, for which each Campus assessed in 2007 the level of alignment between the Campus and the System strategic plans. Candidate objectives for the discussion of the new strategic planning cycle include: a) enhancement of the teaching learning process, b) maintaining an updated academic offer, c) involvement in for-profit project initiatives with island impact through the government and private sectors, d) the strengthening of an entrepreneurship agenda, e) involvement in for-profit artistic and cultural activities in western Puerto Rico, and f) student services and administrative process improvements.

Three key initiatives related to the upcoming strategic planning cycle are now described:

3.2.1. The Agro-Industrial Innovation and Technology Center (CITAI)

In 1991, a group of six professors from various departments of the University of Puerto Rico at Mayaguez joined forces towards a common goal: the establishment of a Masters program in Food

Science and Technology (FST) at our Campus. Since the program inception, it has grown in the number of participating graduate students (local and international) and faculty. Today, the program includes about fifteen (15) faculty members from different departments of the Colleges of Agricultural Sciences, Engineering, and Arts & Sciences, the Agricultural Experiment Station and the Agricultural Extension Service. The FST program was the first multidisciplinary program in the UPR System. To date over 80 professionals have completed the program and current enrollment is about twenty six (26) graduate students, mostly women and Hispanics. It is the second largest graduate program of the College of Agricultural Sciences and third in number of applicants for graduate studies on Campus. Many other graduate and undergraduate students from different departments benefit from the program's resources and facilities.

This year an MOU for a joint PhD Program with the University of Nebraska was signed. Also a new curricular sequence for a minor in Food Science and Technology is pending approval by the Academic Senate. The BS in Food Science was approved three years ago by the Faculty, but is on hold due to a complete revision of the actual BS programs of the College of Agricultural Sciences.

The Food Science Program Faculty members also developed the Agro-Industrial Innovation And Technology Center, (known as CITAI for the name in Spanish). CITAI activities are initially focused on the following initiatives: the Product Research and Development Program, Food Processing Training, Business Incubation Program and Technical Support Program. These activities cluster past activities of the academic program into focused programs for the industry that enable assertive marketing and cost effectiveness. These initiatives will support internal and external entrepreneurs in the incubation and commercialization of their products, which should provide external funding to the program in terms of royalties.



Ag Fair

The Food Science and Technology faculty members also provide continuing education seminars, workshops and courses through the Food Safety Institute of the Americas (FSIA) where training in food safety, and distance education programs are provided locally and internationally. This program also is a self supporting program since funding of the activities comes from grants, MOU's with local government and private industries, and registration fees. This income is used to support research, update and maintain laboratories, and cover travel expenses to congresses where faculty and students present their research activities and results.



Training to Spanish government officials

In the last two years more than 20 seminars per year have been offered. Graduate students are involved in the organization of these activities helping them to develop organizational, teamwork, and leadership skills.

3.2.2. The Bio-Process Development and Training Center (BDTC)

Presently, UPRM is sponsoring two projects at the Biotechnology Development and Training Center (BDTC). They are part of the UPRM Bio-Science Initiative (BIOSEI) which focuses on establishing research groups by providing seed funding of approximately \$80,000 per group. The Initiative requires that the research groups collaborate closely with BDTC in order to encourage the development of technology and research based small businesses. This in turn could result in royalties for the University.

In addition to the BIOSEI efforts, the Bio-Refinery group consisting of several laboratories and a 7.5 acre pilot plant facility focuses on the development and commercialization of bio-based products obtained from lingo-cellulosic and microalgae raw materials. A key objective of this group is the development of a microalgae open pond and bio-photo reactor technology and alliances that could also result in license

fees and/or royalties. Bio-fuels, animal feed and proteins (humans and animals) are some of the strategic products that could be produced.

3.2.3. UPRM Model Factory

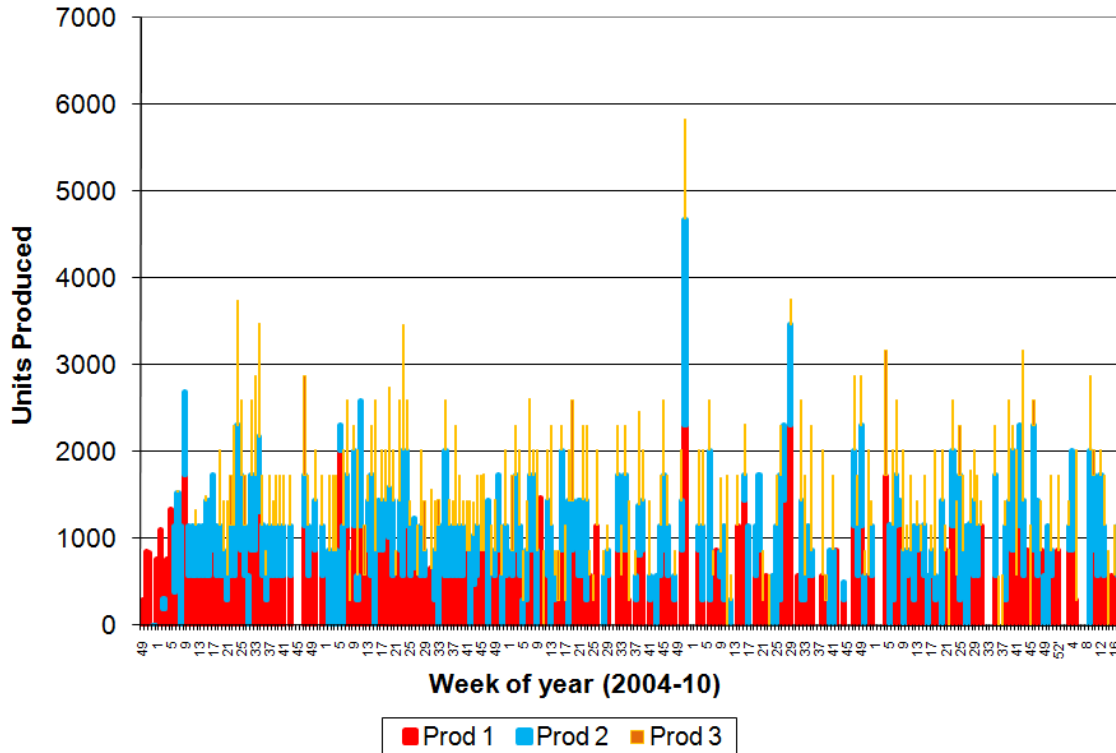
The Model Factory, located in the Industrial Engineering Department, is a for-profit manufacturing activity in which undergraduate students from various engineering disciplines are the main contributors. The business, initiated at the end of 2004, uses a highly automated surface mount technology (SMT) assembly line to build three printed circuit assemblies (PCA's).

Surface Mount Technology Assembly Line View



These products are sold to a customer in the San Juan metropolitan area and are used in a medical device which the customer distributes world-wide. The factory gets paid by product built and students as well get paid at an hourly rate. The weekly production of the Factory is presented below showing the weekly volumes by product. In the past 5.5 years close to 391,000 products have been sold.

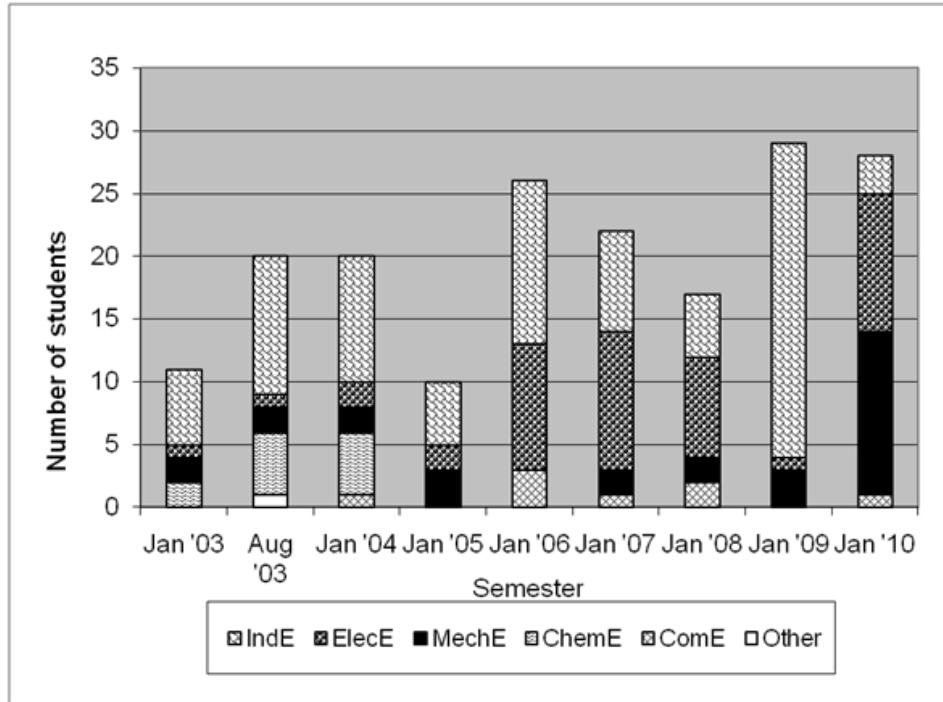
Weekly Production Performance since the Model Factory Initiation



For students to participate in this real life manufacturing activity, an elective course, IE 4050, was developed back in 2003. The contents of the course were defined with the involvement of local industry partners. The course has had students from Industrial, Electrical, Mechanical, Computer, and Chemical Engineering as the following graph shows.

Two additional activities have evolved in recent years from the original manufacturing activity; namely, the redesign of PCA's from through-hole technology (THT) to SMT, and the involvement of experienced students into quality and design for manufacturability (DFM) analysis for PCA's at two other customers. This experience allows students to understand the basics on running a high tech business activity. Various graduates with the Model Factory know-how have ended working for companies in the electronics and engineering design sectors.

Student Participation in IE 4050 by Semester



3.3 Information system integration for the resolution of strategic versus operational funds allocation

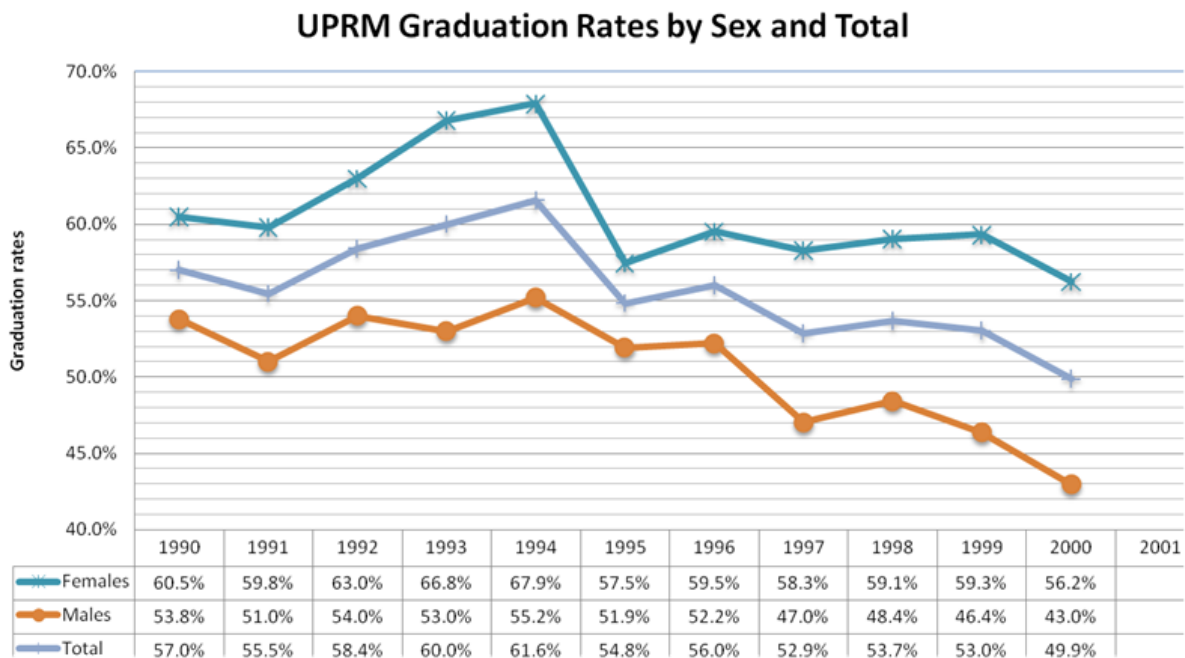
Over the past 2.5 years, the Information System Technology Enhancement Project (PATSI for its name in Spanish), which is an Oracle-based enterprise resource planning (ERP) software, is being deployed through the UPR System (www.patsi.upr.edu). The Finance application has been implemented in Mayaguez and training on the new tools has been slow. The available chart of accounts does a poor job in isolating the funds used for strategic versus operational activities, for which the chart of accounts must be expanded to ease the reporting of strategic versus all other expenses.

During the 2008 visit, UPRM presented the Automated Budgeting Planning System (SAPP for its name in Spanish) which was used to provide resolution to strategic funds allocation but it has been phased out after the arrival of PATSI. Other faculty and administrative reporting tools, such as the System for the Generation of Statistics on Academic and Research Activities (GESTA for its name in Spanish), need to be integrated with the PATSI tools to provide the visibility lost by the removal of SAPP. This effort needs to be addressed in coordination with the Central Administration of the UPR System, which is responsible for the PATSI deployment.

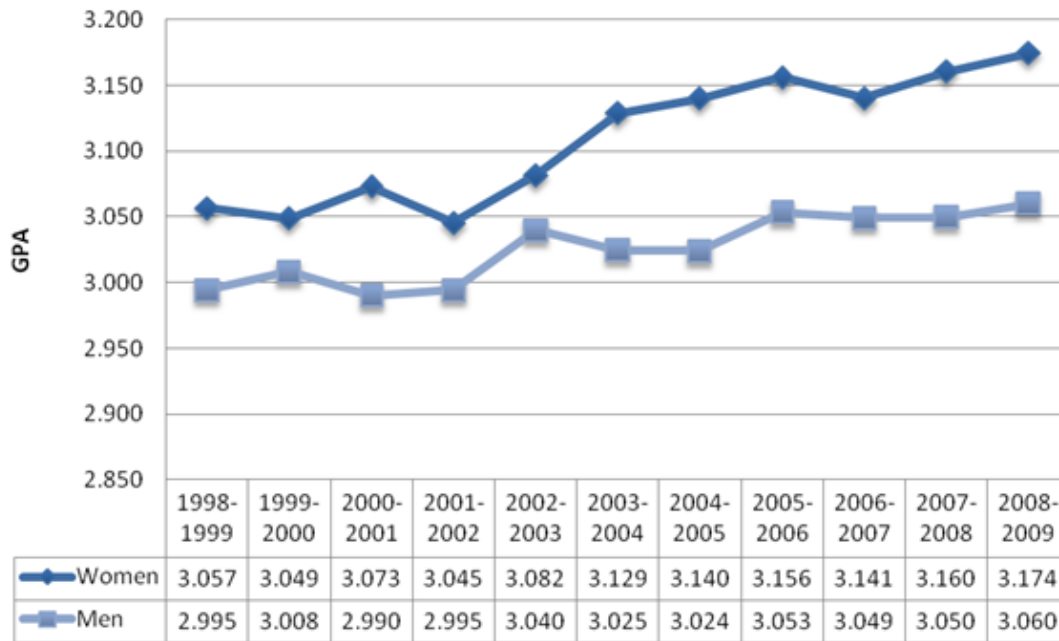
3.4 Focus on critical academic performance measures

To measure success in the enhancement of the teaching-learning process, a group of relevant indicators is being used; namely, graduation rate trends, graduating student final grade point average (GPA), retention rates, and student success rates. The current status of the indicators is presented below.

Graduation rates show a slight downward trend that needs to be worked upon. This metric captures the percentage of students that complete within 150 percent of their target program duration, which is four years for all programs except engineering and industrial biotechnology which have a duration of five years. It is evident from the graph that females outperform males. It is worthwhile mentioning that in recent years, students prefer to become involved in non-traditional academic experiences, such as internships – which in some cases last up to a full year -- to include such experiences in their resumes. This has an obvious impact in the graduation rate performance. It is also interesting to highlight that those students that do graduate show improved performance in the final GPA, as the next graph shows. Students are well aware that their ending GPA does enhance their competitive position in the pursuit of job or graduate school opportunities.

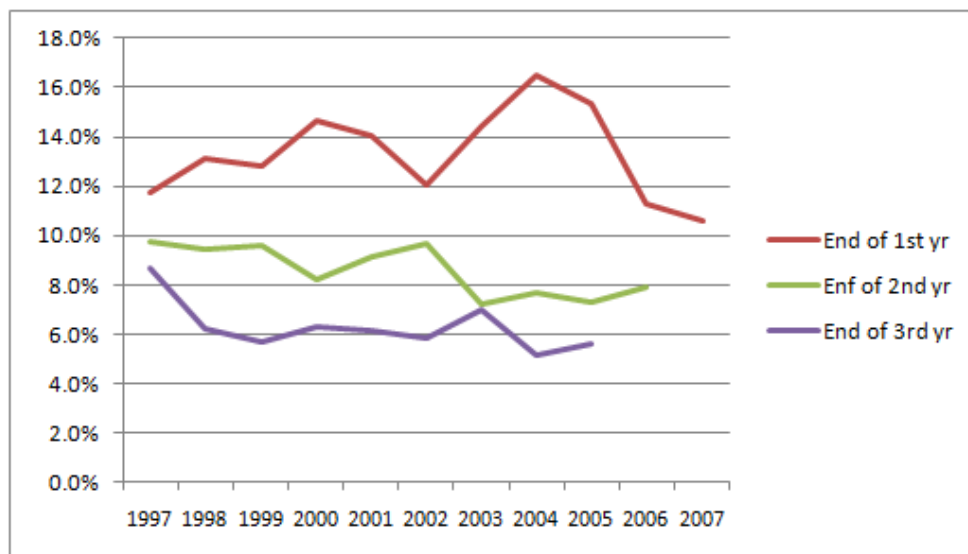


Graduation GPAs at UPR-Mayagüez



Retention rates show that the biggest student loss occurs at the end of the first year. This is related to the difficulties first year students have in their introductory courses, especially mathematics. Many incoming students have poor study habits and spend little time per week in homework and exam preparation, as recent student surveys show (<http://oiip.uprm.edu/beams.html>).

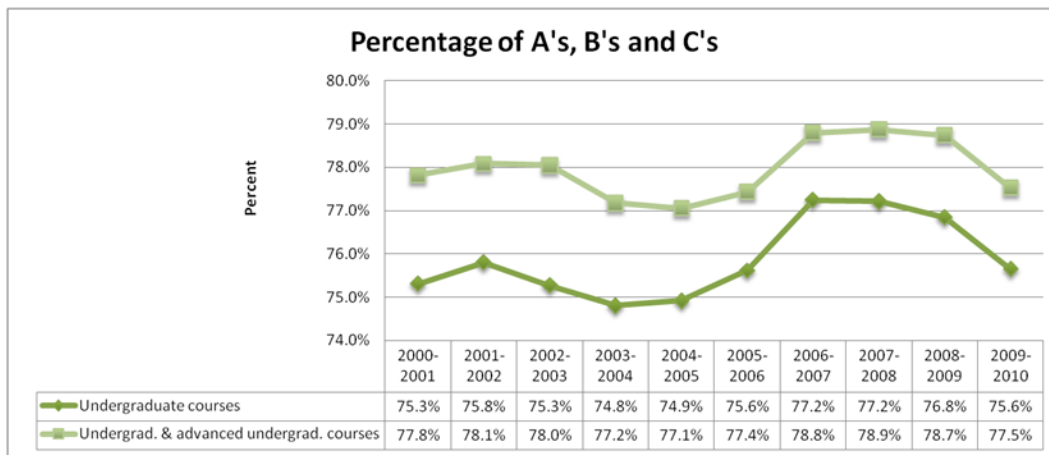
UPRM Retention Rates



The next graph presents student success rate results. Various levels of information are available, such as, results by College, results by course, section, and teacher to facilitate effective corrective action in the pursuit of student excellence. In the Arts & Sciences College, which provides all general education courses, including mathematics, and other initial courses to all programs, multiple efforts have been initiated to improve performance at early stages. Even though many tactics have been tested, still a standardized approach to ensure success at the beginning of the students' programs has not been implemented. This is a major challenge in the upcoming strategic planning cycle. Examples of such tactics currently in place within the Mathematics Department include the following:

- a) Pre-calculus and Calculus course support: <http://math.uprm.edu/academic/courses-help.html>
- b) Mathematics example tests: <http://math.uprm.edu/academic/exams.html>
- c) Internet pages for specific courses: <http://math.uprm.edu/academic/courses-help/mate3171/math3171.htm>.

UPRM Student Success Rates



3.5 Measuring the coverage and impact of Student Learning Outcomes on the student population

Prior to the 2005 MSCHE visit, UPRM's Academic Senate had approved nine institutional student learning objectives (SLO). A tenth SLO, information literacy, was added from the results of the visit.

UPRM documents state that "by the time of their graduation, students will be able to:

1. Communicate effectively.
2. Identify and solve problems, think critically, and synthesize knowledge appropriate to their discipline.

3. Apply mathematical reasoning skills, scientific inquiry methods, and tools of information technology.
4. Apply ethical standards.
5. Recognize the Puerto Rican heritage and interpret contemporary issues.
6. Appraise the essential values of a democratic society.
7. Operate in a global context, relate to a societal context, and demonstrate respect for other cultures.
8. Develop an appreciation for the arts and humanities.
9. Recognize the need to engage in life-long learning.
10. Search for and make good use of information.”

The UPRM Academic Senate, in a recent meeting approved the General Education Philosophy, which states as follows:

General Education Philosophy

UPRM, through its General Education, is committed to motivating its undergraduate students to discover and develop individual and collective values, and the knowledge and competencies that will allow them to achieve their life potential. In addition, both General and Specialized Education aim at forming citizens that will excel in their professional endeavors by means of their broad academic background, rooted in the complex Puerto Rican and global realities.

The university community is responsible for achieving the General Education objectives in the classroom as well as in complementary extra-curricular activities by providing a suitable atmosphere for education. The university community is also committed with the General Education assessment to ensure continuous improvement and the success of the teaching-learning process.

It is a key responsibility of UPRM's General Education to develop the following **values** in the student body:

1. Passion for knowledge; ethical conduct; the practice of justice and democracy; the exercise of citizenship; and the development of wisdom, integrity, self-esteem, and environmental, community and global conscience; all stemming from an internal motivation and desire.
2. Eagerness to learn through a reflexive, changing, and continuous process, which results in continuous acquisition and development of knowledge.
3. The importance of conceiving and propelling new ideas and concepts, based on research, visualization, imagination, and creativity.

It also corresponds to UPRM's General Education to promote the acquisition of the following **knowledge**:

4. A general culture in historical, social, scientific, technological and artistic matters, in addition to knowledge in interdisciplinary issues regarding these subjects, within the context of global and contemporary challenges.
5. The Puerto Rican socio-economic and cultural processes, its history, diversity, global relations, and the contexts for possible present and future scenarios.

And it especially corresponds to UPRM's General Education to lead the student to become empowered with the following **competencies**:

6. Interpretative skills, mathematical reasoning and scientific method as valuable epistemological processes in the critical analysis of information and problem resolution.
7. Effective oral and written communication in Spanish, as the mother language, and in English, as a second language; as well as understanding the interaction between the clarity of thought and the effectiveness of communication; as well as recognizing the desirability of knowing other languages.
8. Search for, access, recognize, and use information in an ethical and legal manner.
9. Recognize and deal with complex problems; considering convergent and divergent perspectives, working in multi-disciplinary teams to achieve common ends, as well as transforming knowledge into judgments and actions that lead to the prosperity of the human being and its environment.

In May 2007, a UPRM General Education Committee was formed, led by a coordinator named by the Academic Affairs Dean. The committee includes representatives from all Colleges and other relevant Campus offices such as the Office of Continuous Improvement and Assessment (OMCA for its name in Spanish), the Office of Institutional Research and Planning (OIIP from its name in Spanish), the General Library, and the Registrar's Office. The General Education Committee included in its charter a proposal for assessing progress in the original nine SLO's. The plan is described in the General Education Assessment Plan, prepared in February 2007. The electronic document is contained in <http://www.uprm.edu/omca/taskforce/PDF/GEAPlan.pdf> .

The General Education Committee changed course from the original plan in the Spring of 2009 by preparing a questionnaire that was distributed among experienced faculty in charge of the identified General Education courses. The analysis of responses has helped the committee in identifying strengths and weaknesses in the coverage of SLO's. The report from this study is included in

http://www.uprm.edu/omca/general_education_comitee/estudios_realizados.php (document in Spanish). Some of these results are discussed later in Section 5.5.

As a next step, the General Education Committee is moving in two directions:

1. Contacting the continuous improvement and assessment leads from the Colleges to collect data on coverage of the SLO's in the core courses of each program. This provides the opportunity to combine general education and specialty courses SLO coverage as a measure of how well the student curriculum is covering the institutional SLO's.
2. Standardizing the use of a single set of assessment and improvement tools to be used throughout general education courses as well as in core program courses. This should simplify the experience for students who participate in teaching-learning improvement cycles throughout their curriculum. Guidelines of such tools were already defined by the UPRM's Academic Senate.

3.6 Improvement of key academic change processes

The creation and improvement of programs, curricular sequences and single courses is a critical activity for the UPR Mayaguez Campus. This stems from the reality that our academic offers are significantly impacted by new advances in science, engineering and technology. UPR-M has been highly proactive in initiating 16 curricular sequences which break down as follows: a) Eight in Arts & Sciences; b) Four in Business Administration; c) Two in Engineering; d) One in Agricultural Sciences; and e) One under the Dean of Academic Affairs. There are five more going through the approval process: a) three in Arts & Sciences; b) One in Business Administration; and c) One in Agricultural Sciences. Curricular sequences use the processes defined in the UPR System Board of Regents certifications 27-03-04 and 47-04-05. A listing of the approved curricular sequences is presented in the following Table.

Available Curricular Sequences at UPRM

College of Arts & Sciences

Art
Atmospheric Sciences and Meteorology
Film Studies
Comparative Literature
French Literature and Culture and Francophone
German
Italian
Music

Available Curricular Sequences at UPRM (continued)

College of Business Administration

Business Administration

Eligibility Requirements for the Certified Public Accountant (CPA) Exam

Entrepreneurial Development

Office Assistant

College of Agricultural Sciences

Teacher-Preparation Program in Agricultural Education

College of Engineering

Aerospace Engineering

Material Science and Engineering

Academic Affairs

Teacher-Preparation Program in Secondary Education

An opportunity for improvement is evident in the processes for the creation, assessment, and revision of programs. This opportunity relates to the UPR System Board of Regents certifications 80-05-06 (program creation), 130-99-00 (course coding and syllabus contents and format), and 43-06-07 (program assessment & curricular revision). Some quality improvement practices such as benchmarking and quality at the source could be incorporated at the early stages of the proposed creation or revision, to simplify the approval efforts downstream and minimize the time requirements from initiation to final approval. As part of the new strategic planning cycle an interdisciplinary team, involving UPR-M and UPR Central Administration participants, will be defined to implement the needed improvements.

4. ENROLLMENT AND FINANCE TRENDS AND PROJECTIONS

4.1 Budget/Financial Allocations

The University of Puerto Rico is composed of 11 institutional units spread throughout the island of Puerto Rico. Financial information is disclosed in its consolidated annual audited financial statement which is prepared by the Central Administration. A budget is prepared annually for the operational expenses of the functions of every Campus of the system. Certain expenses of the Central Administration, such as instruction research, student services, among others, are distributed proportionally to the different units. Payment of bonded debt is also distributed to each unit. Some units include in their budget other expenses which do not represent actual disbursement of funds, such as, accumulated vacation benefits as well as revenues received from formula funds.

4.2 Financial Comments

The UPR is presently undergoing a thorough review of the financial resources available to the system for the coming fiscal years. A major investment in financial software, while preparing the University for an improved control of its financial information and accountability has delayed the issuing of the financial statements for fiscal year 2008-2009. This investment will improve handling of the financial data for planning purposes.

During the current fiscal year (2009-2010), the UPR received resources from the American Reinvestment and Reconstruction Act (ARRA) in the amount of \$105 million, but will be confronting a reduction of approximately 14% in its forecasted revenues coming from State Government Appropriations for fiscal year 2010-2011. An important portion of UPR's revenues is calculated based on a percentage of the average of the two prior fiscal year total government revenues. While the UPR administration is aware of its unique characteristics and standing as a premier higher education institution, which provides certain latitude in the establishment of charges for its services, presently, the UPR administration is evaluating a number of options to confront this reduction, ranging from a reduction in operational expenses identified as unessential to identifying areas of opportunities for additional income. Among these, the imposition of a special temporary student fee to provide needed resources while this situation lasts is being seriously considered, and has been brought to the attention of the students participating in the current dialog process.

An initial estimate of fiscal 2010-2011 deficit amounting to \$166 million has been calculated. Unlike fiscal year 2009-2010 where ARRA Funds provided \$105 million, ARRA Funds for fiscal year 2010-2011 will amount to only \$15 million. However, the UPR administration is determined to allocate adequate

resources so that educational standards are assured in spite of the fiscal and efficiency measures being considered to be implemented. As soon as the formal financial plan is developed and approved, the UPR will make the necessary disclosure to the MSCHE and the PR Council on Higher Education.

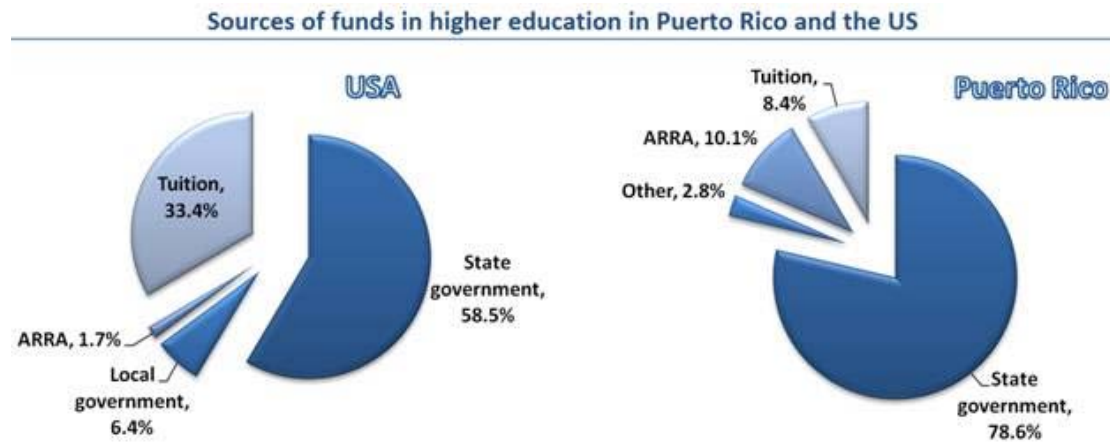
4.3 Additional Remarks on Financial Realities

The solid commitment of the island government with the UPR system is demonstrated by a simple analysis of the UPR budget for the fiscal year 2009-2010. This budget was \$1,037,670,000 (Jan. 2010 revision). 78.65% of these monies came from island government sources (UPR formula, gaming law, and other minor fund allocations from the PR Legislature); 10.12% came from ARRA funds; only 8.41% of the budget came from registration and other student fees; the rest, 2.83%, came from UPR investments and indirect-cost reimbursements. By law, UPR receives 9.6% of the average of the two prior fiscal-year operating budgets of the PR government; this is called "the UPR formula funds". In comparison, in the US, the proportion of state and local tax revenue allocated to higher education declined from 6.8 percent in 1997 to 6.4 percent in 2007. (Source: State Higher Education Finance FY 2009.) The PR government contributed with \$816.1 million to the 2009-2010 UPR budget. This investment is larger than the combined contributions of the states of Vermont, New Hampshire, South Dakota, Rhode Island, and Montana to their higher-education systems.

For the next fiscal year, a shortfall of 14% to 16% has been estimated in the UPRM budget. Undoubtedly, this is an important reduction and hard choices will have to be made to assure that academic excellence is maintained in all our educational programs. This budget reduction is a consequence of the decline in government revenues during the last two years. Other higher education institutions in the US have seen their state allocations similarly reduced. For example, in Iowa, state monies allocated to higher education were cut from \$914.2 million in 2008 to \$721.5 million in 2009 (a 21.1% reduction in one year). During the same period, state monies allocated to higher education were cutback by more than 10% in Ohio (20.4%), Nevada (19.6%), Massachusetts (18.4%), Louisiana (17.3%), Virginia (17.1%), Montana (13.7%), Washington (12.9%), New Mexico (11.7%), and Michigan (10.4%) (Source: http://www.grapevine.ilstu.edu/tables/FY10/Revised_Feb10/GPV10_50state_dollars_revised_PDF.pdf).

This fiscal year, the PR government contributed with \$816.1 million to the 2009-2010 UPR budget. That's about \$205.71/year for every man, woman, and child that lives in PR. This per-capita investment of the Puerto Rican people in higher education is larger than the per-capita contributions of 24 states: Arizona

(\$167.36), Colorado (\$135.26), Georgia (\$160.60), Hawaii (\$58.54), Indiana (\$121.17), Iowa (\$112.33), Maine (\$58.70), Massachusetts (\$147.73), Minnesota (\$143.18), Mississippi (\$191.12), Montana (\$29.90), New Hampshire (\$52.12), New Mexico (\$100.76), North Carolina (\$196.89), North Dakota (\$32.07), Oklahoma (\$88.19), Oregon (\$179.71), Rhode Island (\$12.91), South Dakota (\$33.25), Utah (\$27.73), Vermont (\$32.76), Washington (\$199.96), West Virginia (\$75.49), and Wyoming (\$54.02). The following graph compares the sources and distribution of funds of the UPR system to the average distribution of funds in the US.

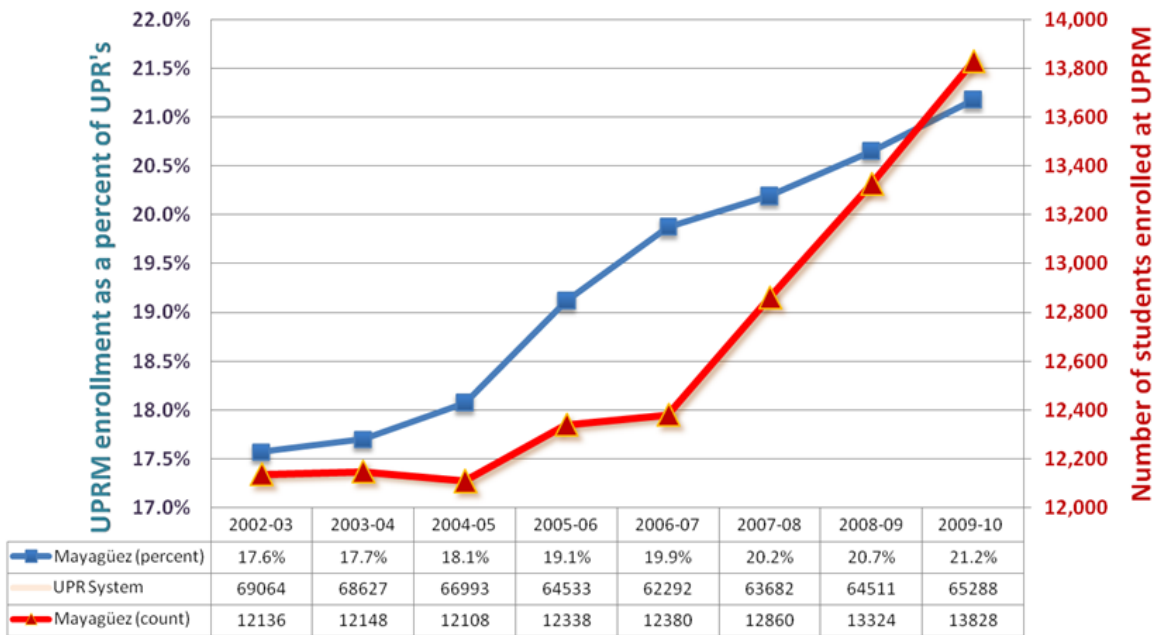


The adjusted budget for the current year 2009-10 approved by the UPR System Board of Regents is included in Appendix A (document in Spanish).

4.4 Budget versus Enrollment

Within the UPR System, the Mayaguez Campus has been the most successful in maintaining and increasing enrollment in recent years. The Figure below shows the enrollment trend since 2002-03 and the drastic increases of the last three years. The following Table presents enrollment versus adjusted budget. The fact that budget trends have not moved in harmony with enrollment places a challenge in UPRM administration in using available funds as wisely as possible.

UPRM Enrollment. 2002-2009



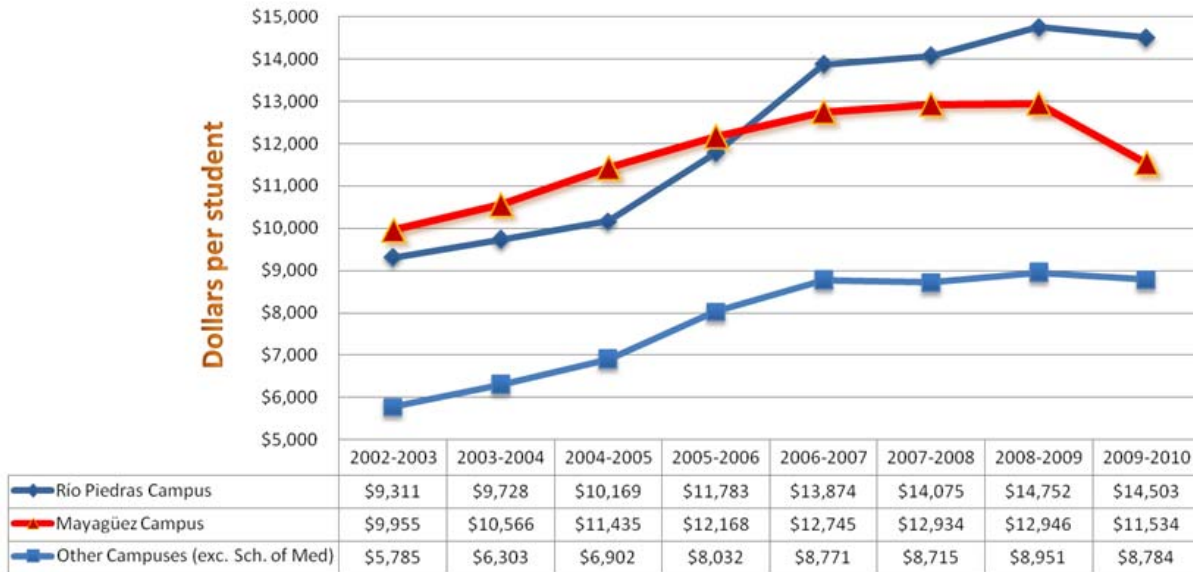
Budget and Enrollment Comparisons

Academic year	UPR- Mayaguez		
	Budget	Enrollment	\$/Student
04-05	\$138,453,723	12,108	\$11,435
05-06	\$150,132,349	12,338	\$12,168
06-07	\$157,780,708	12,380	\$12,745
07-08	\$166,328,451	12,860	\$12,934
08-09	\$172,492,000	13,324	\$12,946
09-10	\$159,497,960*	13,828	\$11,534

(*) Includes ARRA funds.

The following graph shows UPR Mayaguez against the largest campus, Rio Piedras, and the other UPR campuses throughout the island. It is evident that the campus being challenged the most in terms of cost per student is Mayaguez. UPRM is the only campus that has been able to increase its enrollment in the past few years. However, given the budget realities, we estimate that enrollment for the coming years will not increase further.

UPR funds per student. 2003-2009



To address the 14% to 16% budget reduction, back in January 2010, the UPR-M Chancellor formed an advisory committee to define possible areas for cost elimination and reduction. Candidate areas include: a) optimization of the academic offer, b) elimination of teaching and non-teaching temporary contracts, c) limiting of research release time to those required by an external funds proposal, d) limiting of release time for administrative academic support endeavors, e) elimination of teaching overload compensations, f) costs avoidance through energy conservation, and others. The successful implementation of these cost-reduction measures requires discussions and deliberations with the academic community, especially deans and department directors, and some of them may require the approval of the UPR Central Administration. Moreover, currently, discussions are in progress at the UPR System Board of Regents for increasing tuition fees to all students. Final decisions have not been made since the 2010-11 budget is being discussed.

5. ORGANIZED AND SUSTAINED PROCESSES TO ASSESS INSTITUTIONAL EFFECTIVENESS AND STUDENT LEARNING

The information to be provided in this Section discusses the initiatives in progress within each College (Sections 5.1 through 5.4) followed by the results and activities in progress in General Education. The various Colleges in our Campus have placed emphasis on institutional effectiveness in student learning in different ways. An introduction into the General Education activities was provided in Section 3.5, where the current and future actions with respect to the institutional student learning outcomes were discussed. It was stressed that a concerted effort is in progress to standardize practices in terms of assessment cycles and reporting tools.

One of the strategic initiatives important for both UPRM and the UPR System is the pursuit of program accreditations by respected agencies. This serves as an indicator of the relevance and adherence to accepted practices by the programs involved. The coming subsections identify relevant accreditation activities, concluding with accomplishments with the National Council for Accreditation of Teacher Education (NCATE) (Section 5.6) and the International Association of Counseling Services (IACS) (Section 5.7).

5.1 Arts & Sciences College

Even though the College of Arts & Sciences is not directly involved in accreditation initiatives, specific programs are accredited. These include Nursing (National League for Nursing Accrediting Commission or NLNAC), the American Chemical Society, and NCATE accreditation in the following: Social Studies, History, Mathematics Education, Physical Sciences, Chemistry, Biology, English, Physical Education, Art, Theater, and Spanish.

The College has had an assertive assessment agenda currently known as Assessment and Learning Technologies (AvaTecA for its name in Spanish) and previously known as A+. During the March 2008 visit, two progressions of improvement cycles were presented to the MSCHE visitors, with the involvement of all thirteen departments. Two more progressions of improvement cycles have been performed afterwards all focused on student learning. The documentation related to these improvement cycles is available in <http://ac.uprm.upr.edu/avaluo-tecnologias-de-aprendizaje/ciclos-de-avaluo>. The collection of results for the fourth cycle is in progress and it can be observed that some

departments have performed multiple activities; for instance, Social Sciences with eight (8) and Humanities with five (5) activities.

5.2 College of Engineering

The undergraduate programs for the College of Engineering have been successful participants in the Accreditation Board for Engineering and Technology (ABET) agenda. The latest visit was conducted in November of 2008 and the successful feedback was received in the summer of 2009. All six BS programs, Chemical, Civil, Computer, Electrical, Industrial and Mechanical Engineering are fully accredited by ABET. As it well known, ABET assesses student learning with the A through K criteria, which are specific for each engineering discipline. The assessment also includes educational objectives and program outcomes, which are evaluated by students as well as employers. The assessment activities for the College are coordinated by the Learning Assessment Office (SEED for its name in Spanish). Information on recent activities can be obtained in <http://seed.uprm.edu/accreditation.php>; the self-study reports prepared by each program are presented in <http://seed.uprm.edu/reports.php>.

5.3 College of Business Administration

The College of Business Administration is actively participating in achieving accreditation from the Association to Advance Collegiate Schools of Business (AACSB). An initial timetable has been modified after the College requested three more years for complying with requirements. Three key challenges are in progress; namely, (1) the recruitment of more PhD faculty, (2) the increase in publications in refereed journals, and (3) the strengthening of the assessment culture following the guidelines of the accreditation agency (AACSB).

The student learning outcomes for the College have been defined. These include: a) interpersonal skills, b) information technology skills, c) ethical and professional behavior, d) entrepreneurship skills, e) business management knowledge and skills with national and international perspective, f) research and critical analysis for problem solving, and g) knowledge in subject areas (KSA's) in their option of study.

Regarding assessment, the School of Business has defined a roadmap, with the following five key challenges:

Strategic Plan: Definition of mission, vision, critical areas, and objectives. This was initiated back in 2003.

Assessment Office: Selection of an assessment coordinator, an assessment team, and faculty training. Even though this was started in 2004, this is currently being revisited and training activities are in progress.

Assessment Plan: This includes definition of student learning outcomes, the construction of a curriculum map, and the selection of assessment and reporting tools. The task of defining the SLO's was completed; these were presented above. The selection of assessment and reporting tools is being revisited because previous activities in this direction did not achieve the expected results. The Business Administration College is actively participating in the standardization of assessment and reporting tools described at the end of Section 3.5.

Implementation: This involves the execution of student learning improvement cycles throughout the Business programs following the curriculum map; these activities will be restarted in the upcoming semester. The key action that needs to be worked upon is the closing of the loops in the improvement cycles in progress.

Continuous improvement: The improvement cycle learning's should serve to identify changes or improvements in the teaching-learning processes wherever required. Documenting this improvement activity from now until 2013, will be critical as evidence for the accreditation visit success.

Information regarding the AACSB activities in the School of Business Administration is available in <http://cba.uprm.edu/accreditation.php>.

Besides AACSB activities, a curricular sequence on Business Education in the College of Business Administration also got accredited by NCATE.

5.4 College of Agricultural Sciences

The Special Evaluation Team that came to UPRM in March 2008 requested better focus from the College of Agricultural Sciences (CAS) in the assessment and student learning activities. Following the visit, CAS established the following actions as the path forward:

- Restructuring of the Faculty Assessment Committee and revision of strategies;
- Reduction of redundancy of effort caused by independent departmental projects instead of CAS projects on common learning outcomes;

- Moving beyond data collection efforts and focus on using results to improve performance (i.e., closing the loop);
- Continuation of the assessment effort in courses while new strategies and plans obtain approval and are deployed through CAS.

Shortly after MSCHE's visit, the Dean and Director of the CAS reconvened the Assessment Committee and work resumed. As its first priority, the team focused on developing an assessment plan at the College level that consolidated student learning outcomes common to the various academic programs of the CAS. The first draft of such plan was completed over the summer 2009 and was approved by the CCA Faculty. The common student learning outcomes to all CCA programs are the following: (a) Effective oral and written communication; (b) Effective use of teamwork skills; (c) Demonstrate leadership skills in addressing professional challenges; (d) Identify and solve problems, think critically, and synthesize knowledge appropriate to their specialty area; (e) Use information technology as a work tool; (f) Adopt and use appropriately modern technology in their specialty area; (g) Apply values and ethical standards in the profession; (h) Formulate an interdisciplinary vision in areas related to the specialty area and the environment, from a global perspective; (i) Plan, organize and manage agro-businesses; and (j) Demonstrate ability for self- learning.

Aside from such efforts, some faculty members have continued to engage in assessment efforts focused on student learning outcomes for their individual courses. Five departments and the program of General Agriculture have a written Assessment Plan. Of the 12 programs that comprise the CAS, five have initiated data collection activities in nine improvement cycles. Three academic programs have closed the loop on their projects and finished them with a final report. Only seven faculty members did get involved in assessment of student learning. The Mechanical-Electrical Technology program was responsible for four of the seven assessment experiences reported. In the Faculty of CAS a total of 417 students were impacted in the areas of student perception of learning and course core knowledge issues.

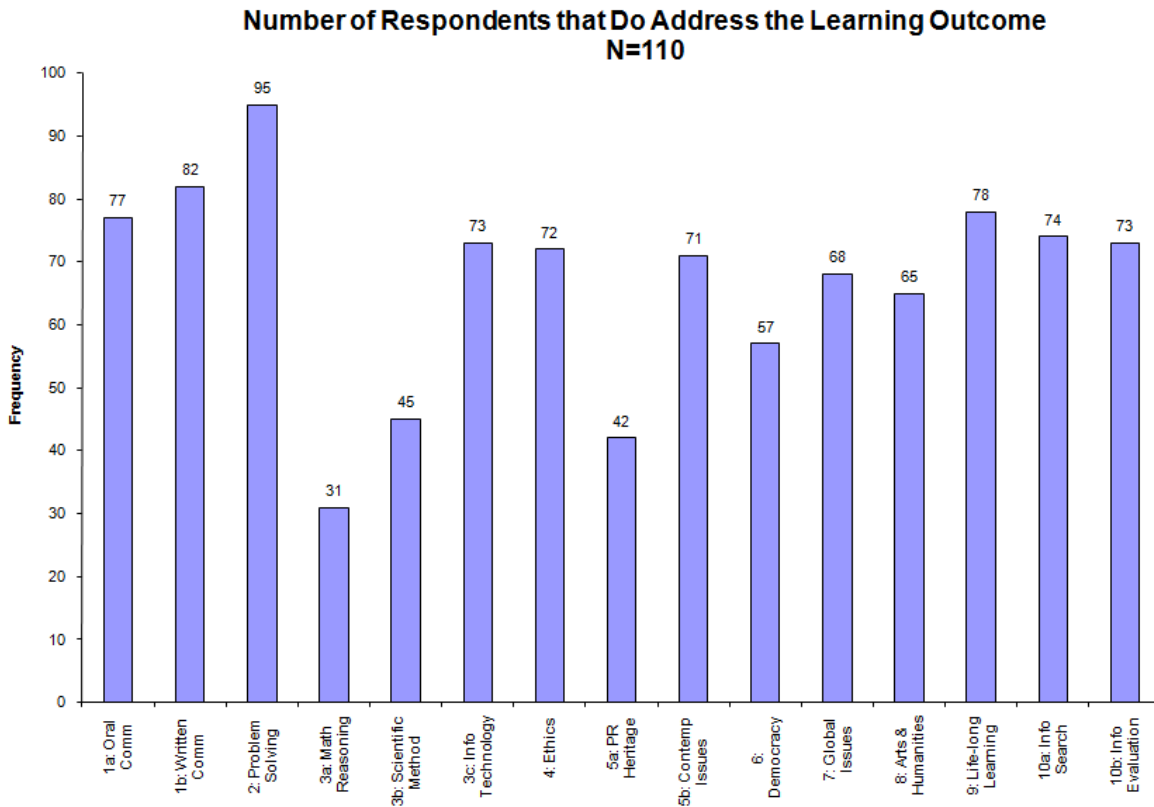
Even though the College of Agricultural Sciences (CAS) is not directly involved in accreditation initiatives, the curricular sequence for the teacher license in Agricultural Education was also accredited by NCATE. This is the only program of this type in Puerto Rico. During the first semester 2004-2005, the

Department of Animal Sciences was audited by the Cooperative State Research, Education and Extension Service (CSREES/USDA). The committee highlighted the efficiency in the use of resources and the commitment of the professors in the endeavors of teaching, research and extension.

CAS faculty has placed significant attention in the redefinition of its academic offers. At present there are twelve (12) undergraduate programs, divided in five departments (Agricultural Economics, Agricultural Education, Animal Sciences, Agricultural Engineering & Bio-systems, and Crops & Agro-environmental Sciences) and one under the supervision of the Associate Dean of the Faculty (General Agriculture); with the CAS student enrollment of 1,000 undergraduate students, representing 8.37 percent of the Campus student population. From the 12 programs, six of them (Animal Industry, Agronomy, General Agriculture, Mechanical-Agricultural Technology, Horticulture, and Pre-Veterinary Science) account for almost 80 percent of the College enrollment. Given this reality, some proposals for regrouping into a smaller number of programs and departments are being studied. In 2009, the Agronomy, Horticulture and Crop Protection departments were consolidated into one department, called Crops and Agro-environmental Sciences.

5.5 Campus-wide General Education

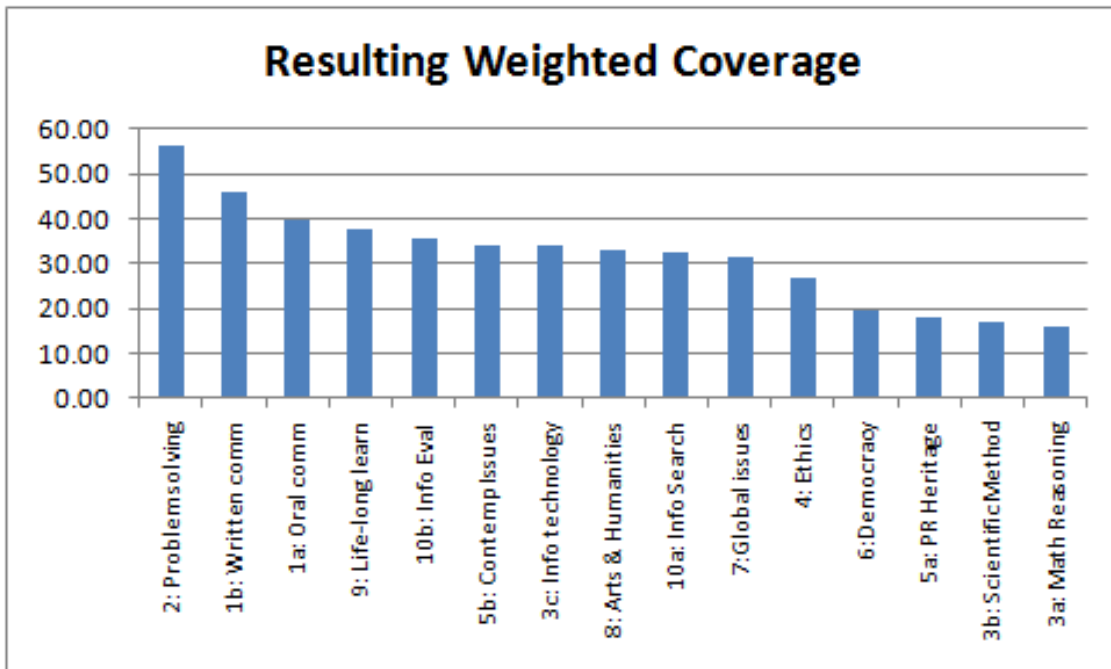
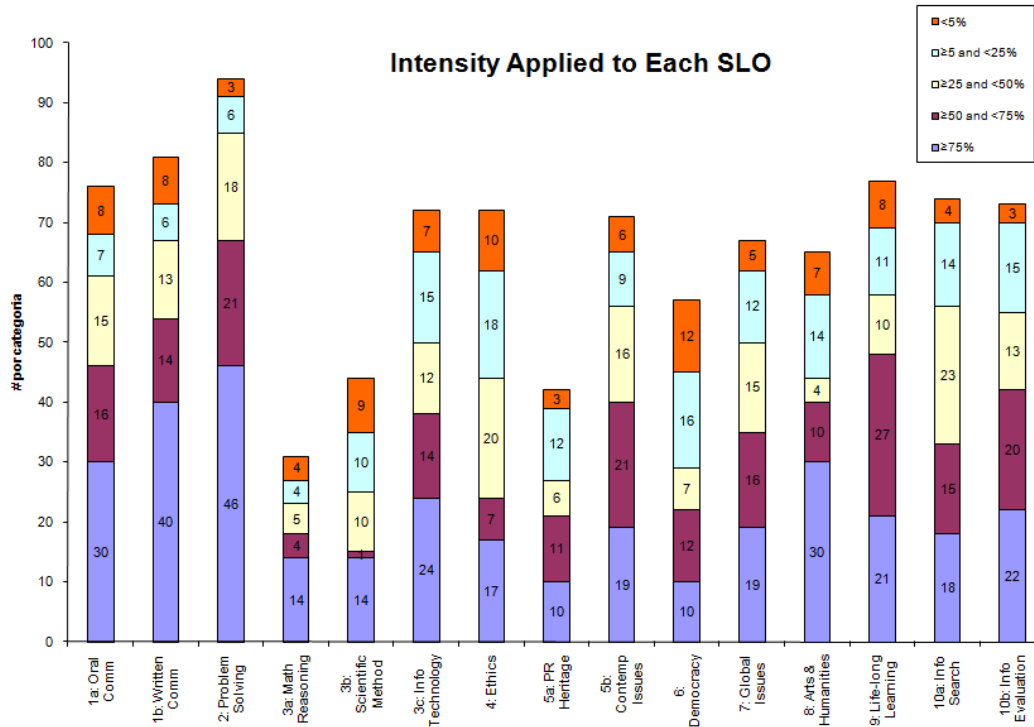
This Section will present some of the results of the questionnaire distributed among experienced faculty in the General Education (GE) course offers. The questionnaire was aimed at understanding how well the institutional student learning objectives are being addressed through the GE courses. Out of 390 questionnaires distributed, 110 were answered and returned to the GE Committee for a response rate of 28.2 percent. The ten institutional student learning objectives (SLO) were subdivided into the following larger set to provide better resolution to results: (1a) oral communication, (1b) written communication, (2) problem solving, (3a) math reasoning, (3b) scientific method, (3c) information technology, (4) ethics, (5a) Puerto Rican heritage, (5b) contemporary issues, (6) democracy, (7) awareness of globalization and social issues, (8) arts and humanities appreciation, (9) life-long learning, (10a) ability for information search, and (10b) ability for information evaluation.



The following graph presents how many respondents address in some level each SLO. The next graph measures the average intensity of the SLO as faculty selected between the following levels: (1) more than 75%, (2) between 50 and 75%, (3) between 25 and 50%, (4) between 5 and 25%, and (5) less than 5%.

The combination of frequency and intensity produces the following graph, which provides a ranking for SLO coverage among the GE courses. The four lowest scores, which reside below 20 percent, include mathematical reasoning (15.8), use of the scientific method (17.1), Puerto Rico heritage (18.0) and democracy (19.6). This graph provides guidance to improvement opportunities. A concern from this graph is that courses that focus on math reasoning and the use of the scientific method are underrepresented in the questionnaire results. Given these weaknesses, it is appropriate to include as many GE courses as possible, and even better expand the analysis to the full curriculum to observe how

these results change. Most of the programs in the UPRM Campus are designed to prepare STEM graduates, for which the analysis of the full curriculum for STEM programs serves as a check & balance.



As explained in Section 3.5, even though the various Colleges have their own approach for assessment practices, it is appropriate to standardize in the assessment and improvement tools to be used throughout the curriculum. This should minimize the learning curve for students that participate in student learning assessment activities at any stage of the curriculum. The actions to achieve the desired standardization have been initiated during the current semester after having initial meetings with all four Colleges. This activity has been led by the GE Committee with direct involvement from Drs. Eddie Marrero from Arts & Sciences and Pedro Resto from OMCA.

5.6 Accreditation in Education

Throughout Section 5, the successful accreditation of thirteen (13) teacher preparation programs received visibility. The visitors from the National Council for Accreditation of Teacher Education (NCATE) were on Campus for the initial visit at the end of April 2010. The following Figure presents the main conclusion from the visiting team; namely, all programs complied with all expected requirements.

Board of Examiners Report

SUMMARY FOR PROFESSIONAL EDUCATION UNIT

National Council for Accreditation of Teacher Education

Institution:

University of Puerto Rico at Mayaguez

Team Findings:

Standards	Initial	Advanced
1. Candidate Knowledge, Skills, and Professional Dispositions	Standard Met	Not Applicable
2. Assessment System and Unit Evaluation	Standard Met	Not Applicable
3. Field Experiences and Clinical Practice	Standard Met	Not Applicable
4. Diversity	Standard Met	Not Applicable
5. Faculty Qualifications, Performance, and Development	Standard Met	Not Applicable
6. Unit Governance and Resources	Standard Met	Not Applicable

5.7 Accreditation of the Counseling program

UPRM's Department of Guidance and Counseling was successfully accredited in late November 2008.

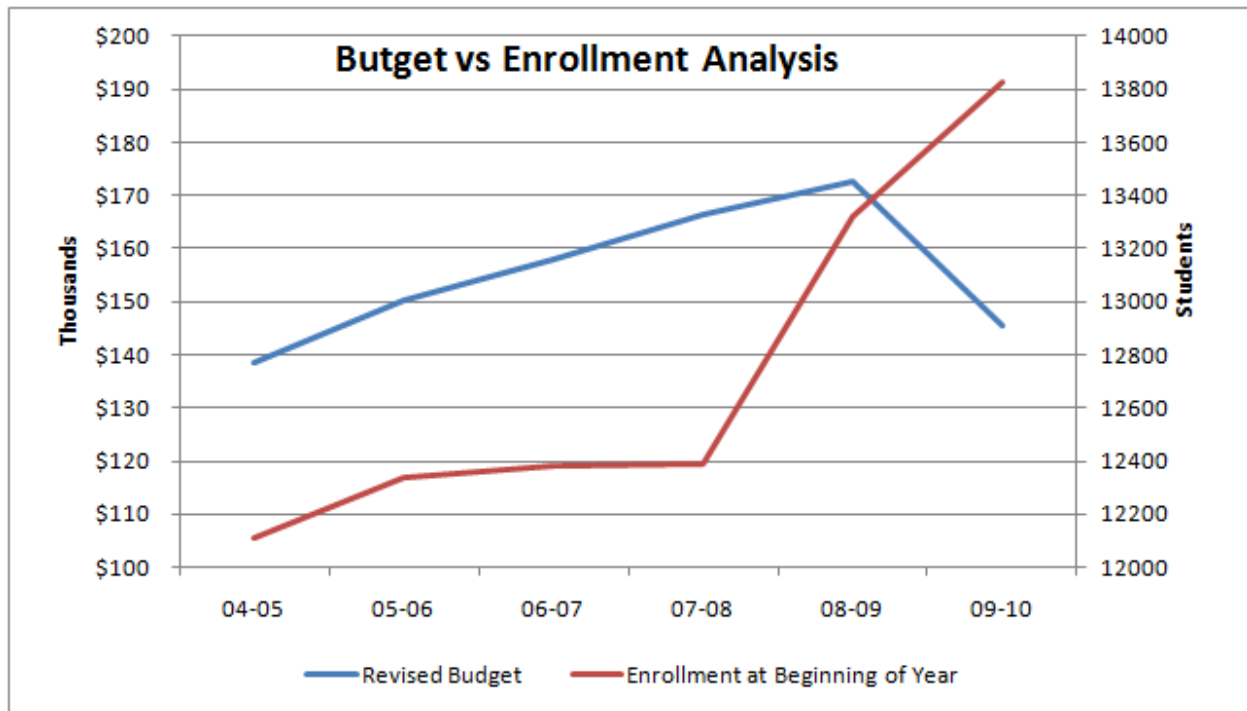
The certificate of accreditation is available at <http://www.uprm.edu/orientacion/certAcred.pdf>.

6. LINKED INSTITUTIONAL PLANNING AND BUDGETING PROCESSES

As mentioned in Section 4, enrollment in recent years has had a positive trend. Two major factors are responsible for this trend:

1. The mandate from the UPR System previous president to maintain a total enrollment of approximately 65,000 students throughout the eleven (11) UPR Campuses; and
2. The attractiveness of UPRM and its STEM-focused programs that motivate many high school students to select our Campus as their preferred choice.

The following graph highlights again the opposite trends between budget and enrollment described in Section 4. The strategic initiatives discussed in Section 3.2 provide the direction needed for a successful future for our Campus. It is strongly believed that UPR and specially UPRM could play a contributing role in allowing the island to reinvent itself towards economic and social prosperity. Since the UPR System budget for fiscal year 2010-11 is currently under discussion, the task of breaking down funds into strategic and operational activities is pending the approval of the budget for the upcoming fiscal year. As soon as the budget is agreed upon and the new strategic plan is approved and deployed, new activities will be initiated to benefit our Campus, the western region, the UPR System, and the island in general.



7. CONCLUSIONS

The activities that have allowed UPRM to maintain its accreditation from MSCHE have remained strong since the 2005 visit. The Special Evaluation Team visit in March 2008 validated progress in the first three years. In the past two years, assessment and continuous improvement in student learning have been strong in the Arts & Sciences and Engineering Colleges. Business Administration and Agricultural Sciences Colleges have room for improvement. The former is revisiting its agenda for a successful AACSB accreditation visit being planned for 2013; the latter is redefining its program offers to improve their ability to attract more and better students. Details were provided in Section 5.

Our UPRM Campus, as well as the UPR System, is going through a process of budget revision motivated by the dependence of the UPR System on the island Treasury Department income and the difficulties of the global and island economies. Our Campus needs to be more assertive in searching for funds from the island economy, given the talented and specialized professionals that constitute our faculty. Six (6) major challenges and opportunities were identified in Section 3; namely,

- 3.1 Responding assertively to the budgetary crunch;
- 3.2 Defining, approving and deploying the next strategic planning cycle;
- 3.3 Information system integration for the resolution of strategic versus operational funds allocation;
- 3.4 Focus on critical academic performance measures;
- 3.5 Measuring the coverage and impact of Student Learning Outcomes on the student population; and
- 3.6 Improvement of key academic change processes.

Our UPRM Campus is the most appealing of the island, considering all public and private universities. Recent enrollment figures provide evidence of this reality. Even with all the current challenges, the future should become more promising! The challenge is to focus action on the strategic areas to be defined so that our Campus can play a leading role in the island economy. We will continue working towards another successful MSCHE accreditation visit in 2015.