UNIVERSITY OF PUERTO RICO, RIO PIEDRAS CAMPUS
GRADUATE SCHOOL OF INFORMATION SCIENCES
AND TECHNOLOGIES

REVISED BIENNIAL NARRATIVE REPORT

Submitted to the
Committee on Accreditation of the
American Library Association

On October 15, 2010
October 15, 2010

Prof. Vicky L. Gregory, Chair
ALA Committee on Accreditation
Office on Accreditation
50 East Huron Street
Chicago, Illinois 60611-2795

Dear professor Gregory:

Enclosed is our Revised Biennial Narrative Report addressing the five matters of concern, as requested in your letter dated April 18, 2010.

Standard I. Progress in developing direct measures for student learning outcomes for each of the learning objectives and how results are used for program improvement

Standard II. Final results of the curricular revision

Standard III. Impact of the Certificate programs on the master’s program

Standard IV. Plans to increase the research productivity of all full-time faculty

Standard V. Results of the search for a new director

We look forward to your evaluation of this new version and we are available to answer any questions you may have. Thank you.

Sincerely yours,

[Signature]

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Professor / Acting Director
gcti.upr@upr.edu

c Prof. Karen O’Brien
Dr. Carlos Betancourt
This revised biennial narrative report is submitted to the Committee on Accreditation to comply with the request made in the letter dated April 18, 2010. The report addresses the five matters of concern presented in the aforementioned communication.

Standard I: Progress in developing direct measures for student learning outcomes for each of the learning objectives, and how results are used for program improvement

All student work is measured using rubrics and other assessment instruments, and professors modify teaching-learning strategies as needed to improve learning outcomes. At the end of the semester, lessons learned and assessment best practices are discussed in faculty meetings. Generalized adoption of best practices is encouraged among faculty members.

Appendix 1 contains a Table in which we demonstrate alignment of program and courses learning objectives with instruments, expected outcomes and findings. The Table, which at this point aligns core and required courses objectives, shows how findings are used for learning improvement. The remaining courses will be incorporated into this analysis by the end of this semester.

What follows is a concrete example of this analysis contained in Appendix 1. In the course CINF 6200 - Organization and Retrieval of Information-Basic (Core), it is stated that by the end of the semester, students are expected to:

1. Organize and describe information in monographs and loose-leaf materials using AACR2 and RDA
2. Choose subject headings with LC and Spanish-headings tools
3. Select classification with DDC and LC schemes and Cutter table
4. Use the MARC format and authority controls
5. Store, manage, and retrieve information using an automated bibliographic database with MARC format.

Student learning outcomes are measured in this course using several methodologies to address diverse information resources and formats. Each student activity is evaluated with assessment instruments, including:

1. Pre-and post testing to identify and monitor individual levels of learning and skill acquisition. Assessment instrument: Pre-post questionnaire
2. Cataloging readings and activities (e.g., class presentations, exercises, blog writing) to ensure learning achievement. Assessment instruments: Rubrics for written report and class project
3. Written and oral reports identifying and describing libraries, the types of catalogs and resources in diverse information units visited (one physical and two virtual) to be posted in the course blog. Assessment instruments: Rubrics for oral and written presentations

It is expected that nine out of every ten students in this course will reach over 80% performance in course measures. Successful completion of course activities, evidenced by evaluations using the aforementioned instruments, is the base to determine that students have reached the expected learning outcomes.

Beyond specific course assessments, after students fulfill all program requirements, they complete an Exit Interview with the School Director and the Student Affairs Officer to provide feedback regarding their academic experience. These interviews are conducted using a semi-structured questionnaire and findings are documented, analyzed, and discussed with Faculty to determine how to improve the program.

In exit interviews, students expressed the need to obtain additional practical experience to fully achieve course objectives. In response to these findings, we implemented direct changes in teaching strategies, in theory and practice, to provide additional practical experience in the courses.

Lessons learned in GSIST assessment processes are the foundation of the redesigned curriculum proposed for Fall 2011. The School has given ample priority to assessment activities in the past ten years and as a result we produced the curricular update that is reported in the next section (Standard II).
Standard II: Final results of the curricular revision

The GSIST completed its curriculum revision after doing a trend and benchmark analysis, and a wide consultation with stakeholders, including students, librarians, representatives of the public and private sector, and the Advisory Board. Four phases distinguish our curriculum revision process:

- **Phase 1**: Defining the curriculum problem and opportunities with internal and external stakeholders (2006-2009)
- **Phase 2**: Trends and benchmark analysis (emphasis on research and gathering data to support decision making) (2009)
- **Phase 3**: Designing the curriculum update and a proposal (2009-2010)
- **Phase 4**: Presenting the proposal to the Deans of Academic Affairs and the Graduate Studies and Research, and the Committee on Accreditation. (2010-11)

Program assessment findings between 2006-09, coming from student questionnaires and exit interviews, and learning assessment findings revealed the following major weaknesses or needs of the curriculum:

- Its lack of flexibility for students structuring their own program of study
- Dispersed workshops of 1 or 2 credits with topics that should be integrated into related courses
- Lack of integration of the technology component of the curriculum.
- Too many graduation requirements (comprehensive exam, thesis or project, a portfolio)
- Lack of variety among elective courses, need for new electives and offerings
- Need for greater quality and depth of courses.
- Need to integrate students to faculty research projects or provide for more research activities within the courses.

Faculty retreats of 2006 and 2007 were valuable and decisive to discuss program assessment findings, analyze trends and opportunities for the School, and forge consensus over curriculum modifications and innovative options.
Faculty analyzed trends in educational practice in the form of new courses, concentrations, and programs in LIS schools in North America. We examined new content areas that LIS schools are offering, and realized that the GSIST could embark on new curricular opportunities based on our vision, expertise of staff and available resources.

As early as in the faculty retreat of 2007, we recommended expanding the scope of the master’s program with two pathways or tracks, namely the existing one in library and information sciences (LIS), and a new one in knowledge management (KM). GSIST’s initiative to move towards KM offerings responded to two factors: acknowledgement of international trends and opportunities of LIS Schools to converge with the KM field, and a long-standing involvement and interest of the School in this interdisciplinary area of study.

Knowledge management initiatives of other LIS schools go back as far as 10 years and have been soundly documented in a wide research literature. Markey (2004), for example, analyzed the information published on the websites of 56 North American LIS schools members of ALISE, and found that new curricular themes were emerging, such as knowledge management, community information systems, electronic commerce, medical informatics. Markey concluded that information professionals “must continually face the challenge of defining and redefining themselves to remain viable in the face of technological advancements that threaten to usurp their role and replace them altogether” (p.338). He further stated that “[w]hen students opt to specialize, they complete several recommended courses, sometimes in a sequence due to increasing specificity and technicality” (p. 328-329).

Rehman and Chaudhry (2005) suggested that LIS schools could play a crucial role in forging the KM potential for information professionals. Therefore, a KM component should be incorporated in their curricula, thus adding thematic diversity and enhancing the learning environment of library and information schools. In addition, “[t]here is a strong interest among LIS professionals toward the inclusion of KM in their educational programs in order to expand the skills of LIS professionals and facilitate their entry into KM job market” (Sarrafzadeh, M., Hazeri, A. & Martin, B. 2006, p. 218). The same authors pointed out in a later study that LIS schools have realized the potential of their curricula for promoting many of the skills needed by KM professionals, but at the same time appreciate the importance of gaining additional skills if they are to fully engage with KM (Sarrafzadeh, Hazeri, and Martin, 2007).

Knowledge management has gained acceptance among a wide range of industries and professions and it has provided LIS professionals with a wide variety of career opportunities. “Librarianship is one of the professions not only vying for a position of prominence in KM, but also whose track record in the field is widely acknowledged” (p.168).
Furthermore, Roknuzzaman and Umemoto (2008) contended that the LIS schools should respond to an urgent need for incorporating KM offerings within their curricula, and that libraries also need to practice this field, therefore playing a much more active and competitive role in the construction of the knowledge society. Likewise, “the creation of a positive cultural background for KM education at LIS schools, and the promotion of higher LIS visibility from the outside world should be a high priority” (Hazeri & Martin, 2009, p. 265).

In order to rethink the mission and strategies of the GSIST with respect to knowledge management, three faculty members of the GSIST conducted a trends and benchmark analysis of KM offerings and programs (Hernández-López, Flores-Caraballo and Suárez-Balseiro, 2009). The study resulted in a research article published by Revista Interamericana de Bibliotecología, one of the most renowned LIS refereed journals in Spanish.

The main objective of this study was to learn about the evolution of KM education in higher education institutions, and its relationship with Library and Information Science (LIS) programs and other faculties. The research documented that many LIS schools have become leaders in developing the knowledge management field and have strengthened their programs by offering complementary tracks or programs in this interdisciplinary area. The exploratory study was based on a wide literature review and a comparative analysis of six selected academic programs and specializations in KM. The authors concluded that KM academic offerings respond in nature and content to the type of department or school that offers them.

Expanding, updating and diversifying the curriculum are not easy tasks, and our faculty has been key in making this happen at the GSIST. We have shared a common perspective on the importance and opportunity to widen the School curriculum with KM courses. The GSIST faculty has realized that the School has matured its consensus for introducing KM courses within the master’s program by focusing on our library and information studies strengths. In proposing a KM pathway or track we assessed our major competencies and determined that the aspects of KM we would like to offer are those with an emphasis on contextual and organizational aspects, and somewhat less on technical matters.

Throughout the curriculum review process the GSIST faculty conducted eight focus groups between the academic years of 2006-07 and 2008-09 in order to assess the impact of the Master’s program and to validate opportunities with a knowledge management area of emphasis within our Master’s program in Information Science (MIS). Groups consulted included the School’s Advisory Board, academic librarians, and information professionals representing the government, private and non-profit sectors. We explored and discussed with these diverse groups the viability of a dual-track
educational offering at the GSIST to respond to the current information and knowledge challenges and needs of the Puerto Rican society.

Findings suggested that many organizations in Puerto Rico lack long-term strategies and competent personnel to manage their information and knowledge processes within their organizational goals. Also, focus group participants identified deficiencies in organizing and integrating organizational information, and loss of intellectual capital and organizational knowledge in the public and private sectors. In conclusion, findings of this consultation phase for the curriculum update suggested the need to prepare a wider range of information professionals working outside of libraries.

Librarians consulted in one of the focus groups agreed that a KM track could be viable in the GSIST curriculum, and that the library and information sciences could make a great contribution to the multidisciplinary character of knowledge management. Another focus group of academic librarians, who are part of a UPR system-wide project, indicated that what they do mostly in their communities of practice is related to knowledge management strategies: such as, information and knowledge sharing, and best practices documentation. They are convinced that KM is deeply related to librarianship and that LIS and KM complement one another.

This semester the School faculty has structured the curriculum update proposal integrating findings from all sources described above. The proposed update to the Master in Information Science (MIS) degree consists of two tracks, one in library and information sciences, and the other in knowledge management. In addition, we have updated the content and the titles of many courses to reflect changes in the field. We are proposing two tracks within the same MIS degree, yet we have conceived a single graduate profile because all graduates will share common capabilities, albeit with different areas of emphasis. The updated Graduate Profile will be found in the Curriculum Update Proposal that will be submitted to UPR authorities in November.

The final proposal will be submitted by November 2010 to the Dean of Academic Affairs and to the Dean of Graduate Studies and Research. These officers are the campus authorities who will evaluate and approve our curriculum update proposal. The Vice-President of Academic Affairs at the UPR's Central Administration will be informed of the proposed change by our campus Deans to certify final acceptance of the curriculum update. The change will be implemented in the Fall semester of 2011.

The Master in Information Science (MIS), which is an academic and professional program, will continue to be offered to full and part-time students. In the master’s program, students learn to identify information needs of diverse user-communities; to evaluate, acquire and organize resources; to create new content, products and services; to manage and preserve information in various formats; to implement a variety of tools and technologies; and to facilitate equal access to information and knowledge. With
these core competencies in place, the GSIST wants to move forward and seize the opportunities offered by KM, both for individual career development and advancement of LIS. The decision of establishing a track in Knowledge Management responds to GSIST’s interest in widening the scope of preparing information professionals within the trends of the knowledge society.

Currently, students must complete thirty-eight (38) credit hours, with five core courses (14 crs.); five required courses (14 crs.); and three electives (7 crs.), plus 3crs. for thesis or research project, as illustrated in Table 1 below.

<table>
<thead>
<tr>
<th>Table 1</th>
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<tbody>
<tr>
<td>Current MIS Program Course Requirements</td>
<td></td>
</tr>
<tr>
<td>Credits</td>
<td>Course Code and Name</td>
</tr>
<tr>
<td>Core</td>
<td>6005- Social exchange of information</td>
</tr>
<tr>
<td>3</td>
<td>6010- Diagnosis of information needs: clients and services</td>
</tr>
<tr>
<td>3</td>
<td>6100- The information industry: resources and services</td>
</tr>
<tr>
<td>3</td>
<td>6200- Organization and retrieval of information (Basic)</td>
</tr>
<tr>
<td>2</td>
<td>6300- Information technologies (Basic)</td>
</tr>
</tbody>
</table>
The proposed curriculum update for a two-track master’s program is as follows. Please note that each of the courses in the proposed curriculum has a 3 credit-hour weight:
### Table 2
#### Proposed 2011 MIS Program Course Requirements
(Each course is 3crs.)

<table>
<thead>
<tr>
<th></th>
<th>LIS</th>
<th>KM</th>
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<tbody>
<tr>
<td><strong>Core courses</strong></td>
<td>1. Information, Knowledge and Society (Updated and renamed CINF 6005)</td>
<td>2. Research Methodology for Information Professionals (Updated and renamed CINF6600)</td>
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<tr>
<td></td>
<td>2. Research Methodology for Information Professionals (Updated and renamed CINF6600)</td>
<td>3. Information and Knowledge Technologies (Updated and renamed CINF 6300)</td>
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<tr>
<td></td>
<td>3. Information and Knowledge Technologies (Updated and renamed CINF 6300)</td>
<td>4. Foundations of Information and Knowledge Organization (Updated and renamed CINF 6208)</td>
</tr>
<tr>
<td><strong>Required courses</strong></td>
<td>1. Information Organization and Retrieval (Updated CINF 6200)</td>
<td>1. Foundations and Applications of Knowledge Management (New course)</td>
</tr>
<tr>
<td></td>
<td>2. Reference Services (Updated and renamed CINF 6106)</td>
<td>2. Strategies and Initiatives of Knowledge Management (New course)</td>
</tr>
</tbody>
</table>


### Table 2
Proposed 2011 MIS Program Course Requirements
(Each course is 3crs.)

<table>
<thead>
<tr>
<th></th>
<th>LIS</th>
<th>KM</th>
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</thead>
<tbody>
<tr>
<td><strong>Additional Courses at GSIST</strong></td>
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<tr>
<td>(Choose 9 crs.)</td>
<td></td>
<td>(Choose 6 crs.)</td>
</tr>
<tr>
<td><strong>Highly recommended courses</strong></td>
<td>1. User studies and information Needs (Updated and renamed CINF 6010)</td>
<td>1. Generation of knowledge, communication and organizational learning (New course)</td>
</tr>
<tr>
<td></td>
<td>2. Selection and Acquisition of Information Resources (Updated and renamed CINF 6100)</td>
<td>2. Innovation Management: from the idea to implementation or commercialization (New course)</td>
</tr>
<tr>
<td></td>
<td>3. Development of Information Competencies (CINF 6016)</td>
<td>3. Organization and Retrieval of Information (Updated CINF 6200)</td>
</tr>
<tr>
<td></td>
<td>4. Administration of Information Units (CINF 6400)</td>
<td></td>
</tr>
<tr>
<td>Additional options</td>
<td>LIS</td>
<td>KM</td>
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<td>5. Conservation, preservation, and restoration of documents (Updated CINF 6507)</td>
<td>4. Introduction to the design of computer databases (Updated CINF 6215)</td>
<td>5. Design and development of web pages (New course)</td>
</tr>
<tr>
<td>7. Introduction to the design of computer databases (Updated CINF 6215)</td>
<td>8. Project Management (New course)</td>
<td>9. Knowledge Management Integration and Professional Practice Seminar (New course)</td>
</tr>
<tr>
<td>9. Production and use of information in social sciences (CINF 6107)</td>
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<tr>
<td>10. Production and use of information in science and technology (CINF 6118)</td>
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<tr>
<td>11. Production and use of information in the Humanities (CINF 6105)</td>
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</tbody>
</table>
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Proposed 2011 MIS Program Course Requirements
(Each course is 3crs.)

<table>
<thead>
<tr>
<th>LIS</th>
<th>KM</th>
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<tbody>
<tr>
<td>12. The school library (CINF 6416)</td>
<td>12. Knowledge Management in Higher Education (New course)</td>
</tr>
<tr>
<td>13. The public library: patrons and services (CINF 6015)</td>
<td></td>
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<tr>
<td>14. Information resources for the child and young adult (CINF 6125)</td>
<td></td>
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</tbody>
</table>

**Cognate Courses offered in related fields**

<table>
<thead>
<tr>
<th></th>
<th>(Choose 6 crs. of cognate courses offered in other programs or at GSIST)</th>
<th>(Choose 9 crs. of cognate courses offered in other programs or at GSIST)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capstone</td>
<td>The new capstone is 3 crs. in Research Seminar providing practical experience in a professor-led research project.</td>
<td></td>
</tr>
</tbody>
</table>

| TOTAL | 36 crs. either track |

The updated curriculum provides much more flexibility for students. Now, 50 percent of the program can be tailored to meet the student interests. Students will be strongly encouraged to consider cognate courses from the GSIST and from other graduate programs on campus.

The current program requires a comprehensive exam, a thesis or research project, and the submittal of an electronic Professional Portfolio. However, in the updated curriculum proposal, these are no longer required. The new program capstone is a 3-credit Research Seminar providing practical experience in a professor-led research project.
Students will work as research assistants within one of the research lines developed by GSIST faculty. This approach will allow students to participate in larger, broader, and better-funded projects than they could on their own. The experience will also strengthen students' capabilities in collaborative research and will reinforce research productivity at the School.

The updated curriculum is also innovating with the implementation of the following pedagogical frameworks throughout the program:

- Problem-based learning
- Evidence-based practice for the information professional
- Information and communications technologies for knowledge production and sharing

The minimum amount of time needed to complete the proposed Master's degree program update is only three terms – that is one and a half years! (The current program requires at least four terms, and in practice more like six, or three years). University By-laws require students to complete the program within six years of initial enrollment.

With this new curricular structure the Master’s program will maintain a common strength through core courses and will provide students with options of two pathways or tracks of study. The updated Master’s program will solve its major problems or weaknesses by:

- Providing a significant flexibility to students so that they can arrange their own program of study based on their interests and needs.
- Giving uniformity to all courses in terms of 3 credit hours.
- Strengthening the technology component of the curriculum by extending to 3 credits the 2 credit hour course, and by using information and communications technologies in all courses for knowledge production and sharing.
- Reducing three graduation requirements to a single integrated practical, research-seminar experience, led by a faculty member.
- Providing a greater variety of elective courses in LIS and new courses in the field of KM.
- Ensuring a greater quality and depth of courses through the revision of core courses and LIS required courses.
Providing a new area of emphasis such as knowledge management will attract to the GSIST new students from a greater diversity of undergraduate programs and departments. In addition, students of both tracks will have the opportunity to share ideas and research experiences in a collaborative learning environment. The KM track will be promoted to outreach students from other graduate programs that could take the courses as electives and to alumni and other professionals related to the information and knowledge fields.
Standard III. Impact of the Certificate programs on the master’s program

The School has decided to continue offering two of the six certificate programs; namely, the School Librarian Certificate and the Archives and Documents Administrator Certificate. This decision responds to the reduced demand for the other four certificates and to meet the need to provide faculty with more time for research endeavors.

When the Certificate programs were created, they were in great demand. Experience showed that a high percentage of students in the post baccalaureate certificates would request admission into the Master’s program.

For example, in the case of the School Librarian Certificate, 2008/2009 statistics evidenced that, out of 15 students entering the program, at least 10 continued on to the Master’s degree (>66%). The Department of Education of Puerto Rico certifies as School Librarian any of our students who obtain either the Certificate or Master’s degree. Most private schools in Puerto Rico do not require the master’s degree for their school library personnel and accept the School Librarian’s Certificate qualification. Thus, high demand remains for the School Librarian Certificate program.

Students transferring from the School Librarian Certificate to the Master’s program also benefit from having 21 of the 22 credits in the Certificate accredited towards the Master’s program. Based on the new curriculum update proposal, students will only have to complete 12 additional credits and the capstone to obtain the Master’s degree.

It is important to note that the School Librarian’s Certificate is the only distance-learning education program offered by the School, and by the University of Puerto Rico. Furthermore, this Certificate is authorized by the Puerto Rico Council on Higher Education. The eLearning modality satisfies the needs of students, in the public and private sector, who work during the day, and live far from the University campus.

We have documented the same pattern of students coming into the Master’s program from the Archives and Documents Administration Certificate. The Government of Puerto Rico has just approved new guidelines to implement digital document management systems. This will require retraining of all document managers and technicians at over one hundred government agencies throughout the Island. We anticipate great demand for this Certificate and we also expect it to continue feeding more students to the master’s program.
Standard III. Plans to increase the research productivity of all full-time faculty.

In the last two years, research productivity at the GSIST has shown a moderate increase as a result of actions taken in response to COA concerns. Evidence includes faculty publications such as book chapters, papers presented in professional congresses and conferences, and research articles published in well-known scientific journals. For example:

**Book Chapters**


**Conferences Papers**


- **Flores-Caraballo, E.** (2009). Using videoconferencing to overcome limitations and to pursue achievement in the secondary public school system of Trinidad and Tobago. ICTE 2009, V International Conference on Multimedia and ICT in Education. Lisbon, Portugal, April 18-22.

- **Flores-Caraballo, E.** (2010). Destrezas tecnológicas para el arquitecto e ingeniero del Siglo XXI. International Congress VISION 2010 Technology for Community, San Martín de Porres University, Engineering and Architecture College, Lima, Perú, August 18.


Research Articles


In addition, and according to the commitments of fulltime faculty with research activities, the GSIST is implementing new teaching and administrative practices to facilitate faculty intellectual production.

- Starting with Academic Year 2010/2011 each faculty member is receiving a 3 credit hour release time for research

- Each faculty member has been assigned a master’s student research assistant, sponsored by the Office of the Dean of Graduate Studies and Research, to collaborate in his/her research

- We are also taking steps to declare specific lines of research that will enable both individual and collaborative grant proposal writing and research projects among faculty members. The capstone modality proposed in the curriculum update will strengthen student-faculty research collaboration and production in these well-defined lines of research

- The newly recruited faculty member, Dr. Sergio Chaparro Univarro, with a strong academic record, will contribute with the research endeavor.

Our objective is to facilitate each faculty member’s ability to conduct research, present papers at professional conferences, and submit the results of his/her study to be published in peer-reviewed journals.
Faculty members will submit written annual research plans and progress reports. The Personnel Committee and the School Director will monitor faculty compliance and intellectual production.
Standard V. Results of the search for a new Director.

On August 16, 2010, the Interim Chancellor, Dr. Ana Guadalupe, invited the Faculty, the Administrative Personnel and officers of the School’s Student Council to participate in a direct consultation process for the selection of the new Director (See Appendix 3). Later in the month, Academic Affairs Dean Sonia Balet conducted the search process as is defined in the University Bylaws. (See Appendix 4) and a report has been submitted to the Chancellor. The new Director will be appointed by December 2010 and will initiate functions in January 2011.

Final Remarks

We appreciate the opportunity to submit a revised Biennial Narrative Report to the Committee on Accreditation (COA). This has given us the opportunity to share with you our many achievements in the period since the last visit of the COA and our continued commitment to academic excellence. This report addresses the concerns expressed in your April 18th, 2010 communication, and reassures ALA that our program is fully compliant with accreditation standards and requirements. Thank you.
References:


Appendix 1 Example of Learning Outcome Assessment Alignment to Program Objectives work being conducted at the GSIST

Appendix 2 Examples Assessment Instruments and Rubrics

Appendix 3: Chancellor’s Dr. Ana Guadalupe invitation to participate in a direct consultation process for the selection of the new Director

Appendix 4: Academic Affairs Dean, Dr. Sonia Balet, call for interviews which were conducted in September 2010.