Comments Welcome

Medical Laboratory Sciences: An Analysis

Mark B. Rosenberg, Provost
Florida International University
November 5, 1999

"...we believe that an across the board effort is required for FIU to truly become a research university. Every sector of the University will have to pull its weight..."

FIU Faculty for a Research University,

"Strategies for Building a Research University:

A Position Paper," 1991

Table of Contents

Comments Welcome

Medical Laboratory Sciences: An Analysis

Mark B. Rosenberg, Provost
Florida International University
November 5, 1999

"...we believe that an across the board effort is required for FIU to truly become a research university. Every sector of the University will have to pull its weight..."

FIU Faculty for a Research University,"Strategies for Building a Research University: A Position Paper,"[1]
1991

SUMMARY

At the threshold of the new millennium, Florida International University faces an exciting and challenging future. The opportunities that lie ahead encourage us to reinvent ourselves—keeping the qualities that make FIU a great university, making necessary changes to remain competitive, and seeking new ways to reach a higher standard of excellence.

In the decade of the 1990s we have lived through a paradigm shift in education—from pre-K to 12, to higher education. The rules are changing, and these changes affect how the business of education is run at the national, state, and local levels. Funding cutbacks coupled with more legislative oversight and pressures for cost management have led to a major nation-wide reexamination of how we in higher education do our business. We are being asked to do more with less resources, but most of all we must adhere to more stringent accountability standards and demonstrate how effectively we have used the resources entrusted to us.

The data presented in this report demonstrate that Medical Laboratory Sciences (MLS) has been a very high-cost, low productivity program with a decade-long record of underperformance, awarding an average of 10.5 bachelors degrees and 2.6 masters degrees per year. With seven regular tenured faculty, the yearly average ratio of 1.9 degrees to one faculty is the lowest of all State University System MLS programs. Low productivity has been a major concern of FIU's MLS programs, an issue cited as problematic in both the 1991 national accreditation review and in the 1996-1997 Board of Regents program review. In response to the 1991 review, MLS faculty voiced concerns about low enrollment in the MLS program and acknowledged their inability to recruit new students. In addition, over the period of a decade three deans (Keppler, Blucker, and Weekes) and one provost (Mau) met with the MLS departmental leadership and faculty to emphasize the need to increase productivity in light of the program's high cost as compared to other programs, but these efforts had little or no positive results.

[1] Signed by Philip Church, Yesim Darici, Robert Farrell, Paul Foos, Domitila Fox, Walter Goldberg, Ken Gordon, Andy Grof, Ken Hardy, Bruce Hauptli, Susan Himburg, Ronald Jones, Peeter Kirs, Eric Leed, Ramon Lopez de la Vega, Anthony Maingot, Kathleen McCormack, Ramon Mendoza, Masoud Milani, Krish Muralidhar, Brian Peterson, L. Scott Quackenbush, Howard Rock, Jim Rotton, Qian-San Shen, Sylvia Smith, Karen Sowers-Hoag, Jim Story, Wei Sun, Mark Szuchman, Warren Treadgold

Included in this analysis are the findings of several studies about the nation-wide transformation that is taking place not only in the health care field, but more importantly for FIU, the transformation that must occur in workforce development, and specifically in this case, the training of health professionals. For example, the Pew Health Professions Commission report underscores the need for decision makers in the academic and bureaucratic arenas to face the inevitable changes that are taking place in health care financing and the need to take responsibility for better management, greater accountability, and more effective and efficient use of resources in the preparation of health professionals.

The decision to recommend closing the MLS programs at FIU considered numerous factors—they are explained in detail in this report. Data that demonstrate the high cost and low productivity of the MLS programs; environmental pressures that demand increasing responsiveness and greater accountability for resources; and the desire of FIU faculty and administrators to attain Research I status and channel efforts and resources toward achieving this goal, weighed heavily in the recommendation presented here. As noted in the 1991 faculty document, "Strategies for Building a Research University," hard choices must be made and we must confront the tasks ahead if we wish to become a competitive, research university.

Medical Laboratory Sciences: An Analysis presents the historical context as well as detailed information leading to the decision to recommend elimination of the bachelors and masters degree programs in Medical Laboratory Sciences at FIU. Reviewers seeking to understand the institutional, national and state context for this decision should refer to the **Background** section, beginning on page 1, and the section **Research I at FIU**, page 6. **The Health Professions and Higher Education in the 1990s** section (page 7), describes the environmental context within which MLS can be evaluated as a component of the health professions. Those interested only in specific details about the **Medical Laboratory Sciences** program at FIU can find this information beginning on page 9. The section on **MLS Program Productivity Analysis** begins on page 12, with data presented in Tables 1-16 on subsequent pages.

The intent of this document is to provide for all reviewers an understanding of the context and process that led to the decision to recommend program closure. We have appreciated the many thoughtful discussions during this process—they have helped to set the broader framework of program review that must be more fully developed and they have encouraged us to consider more cost-beneficial partnerships to prepare medical technologists. We understand the responsibilities of seeking alternative institutional employment for MLS faculty once the department is formally closed. This of course is a shared responsibility.

Comments Welcome

Medical Laboratory Sciences: An Analysis

Mark B. Rosenberg, Provost
Florida International University
November 5, 1999

"...we believe that an across the board effort is required for FIU to truly become a research university. Every sector of the University will have to pull its weight..."

FIU Faculty for a Research University,"Strategies for Building a Research University: A Position Paper,"[2]
1991

Purpose

The purpose of this document is to explain the University Administration's recommendation to the State University System (SUS) Board of Regents to eliminate formal bachelors and masters degrees in medical laboratory sciences. This recommendation will be presented at the November 18, 1999 meeting of the Board. If accepted: FIU will proceed with a comprehensive plan for currently enrolled students to assure completion of the MLS degree; FIU will also make every effort to relocate MLS program faculty in the University; and consistent with industry trends, the University will explore new, more efficient, and productive options to support community needs for trained medical technologists.

Background

FIU's founders initially suggested in the early 1970s that the university would be a "different kind of institution."[3] However, the pattern of faculty hiring university-wide reinforced a *different* reality: development of a university that was nationally competitive in scholarship and research. FIU demonstrated its national competitiveness as early as 1979, when faculty in the College of Arts and Sciences were awarded a Title VI National Defense Education grant for Latin American and Caribbean Studies–putting the program in the company of a select group of peers at AAU institutions across the country.

Under President Gregory Wolfe (1979-86), the institution received a state mandate (The Comprehensive University Presence Program–CUP) to underwrite accelerated development of graduate programs. CUP not only ensured that the curricula for new masters and doctoral programs would be developed. It also provided a major source of funding to fund state support for faculty research and the selective hiring of research and graduate-oriented faculty.

---

[2] Signed by Philip Church, Yesim Darici, Robert Farrell, Paul Foos, Domitila Fox, Walter Goldberg, Ken Gordon, Andy Grof, Ken Hardy, Bruce Hauptli, Susan Himburg, Ronald Jones, Peeter Kirs, Eric Leed, Ramon Lopez de la Vega, Anthony Maingot, Kathleen McCormack, Ramon Mendoza, Masoud Milani, Krish Muralidhar, Brian Peterson, L. Scott Quackenbush, Howard Rock, Jim Rotton, Qian-San Shen, Sylvia Smith, Karen Sowers-Hoag, Jim Story, Wei Sun, Mark Szuchman, Warren Treadgold

[3] See Thomas D. Riley, *A History of Florida International University* (Miami: FIU, 1998), pp. 16-17.

Upon becoming President in 1986, Modesto A. Maidique reinforced the University's aspirations to compete at the highest academic levels when he declared that FIU was a "research university." While his approach was initially rebuffed by the Board of Regents,[4] institutional persistence driven by faculty aspirations and CUP funding helped to cement the drive for national status through competitive research.

Throughout the late 1980s and 1990s the pursuit of research excellence became a central objective--as embodied through a stream of vision statements on "pursuing research university status" drafted by FIU's then Associate Vice President for Academic Affairs, Thomas Breslin. A June 1990 "fifteenth and final draft" statement declares that in the area of research:

...the university's goal is to make research a characteristic of its academic programs and establish itself by the year 1995-96 as a Research University II and by 2000-2001 as a Research University I....

Faculty persistence coupled with Maidique's vision and Breslin's specific goals statements cascaded through the institution with a variety of impacts. For many faculty, the administration's goal to create a research university signaled the opportunity to develop new advanced studies programs, expand departments and curricula, and deepen research capacity through CUP funding. A host of advanced degrees were proposed and implemented during this period and have subsequently become significant elements in the institution's graduate offerings.

Between 1984-85 and 1995-96 CUP enabled FIU to initiate some 40 masters degrees and double the number of doctoral degrees. Even at this juncture of accelerated growth, the University evaluated and decided to close a number of programs, including the prosthetics and orthotics, home economics, and apparel management programs. Nursing and technology programs, including aviation, were closed in the 1970s.

Moreover, grants and contracts grew from $8.4 million in 1984-85 to over $30 million in 1995-96. FIU's growth during this period stood in marked contrast to topsy-turvy statewide budgeting: budget cuts in 1989-90 and 1990-91 took a total of $6.7 million from FIU's base budget. During this same period, total state tax dollars per student FTE declined from $8,000 in 1987-88 to just over $5,500 in 1995-96.

Even during these difficult budget years, FIU faculty and administration continued their pursuit of research competitiveness. Testimony to faculty engagement and consensus over the research orientation of the institution came with "Strategies for Building a Research University: A Position Paper" circulated throughout the University in April 1991, and endorsed by a cross-disciplinary group of FIU colleagues—including many campus leaders then and now.

"Strategies" is a prescient and gutsy faculty statement about process and goals, offering 11 recommendations to get the institution to its R-I target by 2001. It declares that "FIU's proper goal is to become a 'research university' in the sense that this term is normally used.... a university whose faculty members devote themselves to research as a central aspect of their activity..." It also

[4]Sandy Kravitz, "University Convocation Address," Florida International University, October 4, 1991, p. 6.

states that "we wish to become a research university first of all because we understand that our research is our most important contribution to improving the human condition."

The 1991 faculty document, "Strategies for Building a Research University," pulls few punches about the institutional implications of its support for research. It states that to "serve the people of Dade County best, FIU needs adequate funding. This will never come simply through the teaching FTE formula. We must win large amounts of external grant funding." It argues that "even though the largest potential funding exists in science and engineering, we believe that an across the board effort is required for FIU to truly become a research university. *Every sector of the University will have to pull its weight* [emphasis added]. And the contributions to be made by teaching and service activities to the improvement of FIU on the path to research university status are also immense."[5]

It further specifies: "The professional and economic interest of every faculty member at FIU–as well as the interests of the people of Miami–depend on the institution becoming a research university. And being a research university in the first place means extensive funding in the sciences, including the medical and allied sciences, and engineering, the areas of greatest external funding availability."[6]

The report calls upon the faculty to "confront the tasks necessary to become a research university" and it warns that "some hard choices will be necessary."[7]

To give substance to its notion that "each and every area" of the university needed to develop to its fullest potential, the faculty position paper cited developments in a number of FIU units where tough decisions (particularly around personnel and resource allocation issues) were being made: "Public Affairs at the North Campus has been crafting a new identity as a research-oriented college" and the College of Education has been forging a "deep process of renewal."[8]

The faculty position paper heralded a new and intensified commitment to a research university during the 1990s. In "Florida International University in the Year 2001: Opportunities and Challenges" (1st edition, 1992) the institution confirmed its intent to achieve Research I by 2000-2001 and further to be recognized as one of the top 25 urban research universities in the US, along with such peer institutions as the University of Houston, George Mason University, the University of Illinois (Chicago Circle) and the University of California (San Diego), (p.13). The timetable for achieving Research I was later changed to 2007-2008 (2nd edition, 1994).

By 1996, a revised plan expanded and focused earlier discussions and documents. In "Reaching for the Top," the institution's vision as a "top, public, urban, research university" was clearly

---

[5]FIU Faculty for a Research University, "Strategies for Building a Research University: A Position Paper," April 13, 1991.

[6]Ibid, p. 7

[7]Ibid., p. 12.

[8]Ibid, p. 23.

articulated. Faculty debate and discussion led to the identification of five academic themes to focus the development of educational and research programs.

To sharpen its ability to meet academic challenges implicit in developing a Research I University, FIU added additional advanced degree and research programs and reorganized academic units. During this period, both a College of Urban and Public Affairs and a College of Health Sciences were created. To accelerate research to accommodate the corresponding space crunch, the College of Engineering was also relocated to the newly acquired Cordis site–a measure that had been proposed by faculty years earlier in their "Strategies for Building a Research University: A Position Paper."

Throughout the decade of the 1990s, FIU has been firmly focused on meeting growing enrollment targets, the development and initiation of advanced degree programs, and the creation of a nationally competitive research capability. However, CUP funding to underwrite new advanced degree programs was formally ended by the Board of Regents during the 1998-99 academic year in a broader context of growing pressures for cost management and accountability in higher education.

The National and State Contexts

The 1990s produced funding pressures that resulted in major retrenchments in higher education in states such as California and Massachusetts. Funding cutbacks coupled with more legislative pressure for cost management has led to a major nation-wide reexamination of how we in higher education do our business:

- At the University of Nebraska (Lincoln), the provost there has written a series of position papers on focusing resources and the prioritization of academic programs in anticipation of program efficiencies, cuts and reallocations for 1999 and beyond (http://www.uneb.edu/planreport/cuts2.htm; http://www.unl.edu/svcaa/Activities/OpenLetter.html; and http://www.uneb.edu/planreport/Cuts2.htm) .
- At Arizona State University, a newly emerging Research I institution, a strategic planning committee stated in 1997-98 that "... for the next five years, the provost, deans and department chairs should make targeted investments (through both reallocation and new funding sources) in primarily interdisciplinary research areas" and that a culture should be developed in all disciplines for pursuing externally funded research..."
- At Ohio State University, the new provost, Edward J. Ray, has initiated a Selective Investment Program to reinforce a priority area: academic excellence (http://www.oaa.admin.ohio-state.edu/oaa/speeches/senate99.html).
- UCLA's new President, Albert Carnesale, has emphasized the need to "concentrate excellence." He has further declared that traditionally public universities have emphasized "coverage," but a "truly great university can't do everything. It must focus its resources on what it can do best" (http://www.uclanews.ucla.edu/Speeches/acsenhate.html).
- A study prepared for the Association of Governing Boards of Universities and Colleges reported that "The greatest danger we see is that in this new era of growing doubts and demands, colleges and universities are neither as nimble nor as adaptable as the times require. Why? Because the academic presidency has become weak. The authority of college and university presidents is being undercut by all of its partners — trustees, faculty members,

> and political leaders and, at times, by the president's own lack of assertiveness and willingness to take risks for change."[9]

Closer to home, Dr. John Lombardi, President of the University of Florida, initiated a Florida Quality Evaluation Project in 1993 to match information about productivity and quality against resources and expenditure data to develop a common understanding about the sources and uses of funds in each unit. The premise behind this exercise and the subsequent development of the University of Florida "Bank" to allocate resources was the belief that the success of the university depended on its ability to create and sustain quality while managing costs and investing resources effectively.[10]

On the heels of the University of Florida's efforts to rationalize, refocus and calibrate their use of scarce resources, SUS Chancellor Adam Herbert and the Board of Regents created a new five year strategic plan to facilitate decision making at both state and institutional levels and to permit the focus of resources on areas of greatest need. The plan "gives universities the necessary structure to respond quickly to a rapidly changing society."[11] It calls on institutions to develop partnerships with legislators in the development of accountability measures for greater flexibility in funding– critical for universities to "adapt quickly to continually changing economic, cultural and academic environments." In the process, the SUS has adopted a set of new system-wide indicators that serve as accountability measures for legislators and taxpayers to evaluate their "return on investment" in publicly funded institutions of higher education. Measures include:

- enrollment targets;
- graduation rates;
- first time in college (FTIC) retention rates;
- sponsored research expenditures;
- University endowments and annual giving; and
- degrees granted.

The plan states that the SUS must create an academic community of excellence in which each university clearly defines its mission and goals. The challenge for each university is to "become a strong, vibrant and relevant institution within an interlocking system." It states that each university must build on its strengths. The plan creates broad parameters and gives universities self-determination, accountability, mobility and a clear vision on how to meet the many needs of Florida's residents.

It creates a classification system for each of the state's universities. The purpose of this system is to rationalize and focus institutions on their core competencies and assist them in setting priorities at both the graduate and undergraduate levels.

---

[9] "Renewing the Academic Presidency: Stronger Leadership for Tougher Times" (Washington, D.C.: Association of Governing Boards of University and Colleges, 1996) p. x.

[10]University of Florida, "The University of Florida Bank: Three Year Perspective on Performance," p.3.

[11]Board of Regents Chairman Dennis Ross and Chancellor Adam W. Herbert, "Five-year plan forges vital links to Florida's communities," (http://www.borfl.org/borpubs/clearfocus/pg4.htm).

It also acknowledges that Florida lags behind most other states in the development of Research universities, and that as a Research II university, FIU (along with UCF and FAU) are "poised for significant gains in graduate education and sponsored research." The purpose of this system is to rationalize and focus institutions on their core competencies and to assist them in setting priorities at both the undergraduate and graduate levels.

For the first time in its existence, FIU has gained designation as a research institution within the State University System. This recognition comes nearly three decades after the faculty set their sites on national competitiveness and nearly two decades after the institution's leadership formally ratified the faculty's goal of research university status.

As part of its efforts to give state universities greater flexibility and accountability, the Board of Regents has turned over program review to each institution. As a result, program review (timing and follow-up) will be a function of local institutional priorities and directions rather than a mandate of the central system. This will place a greater burden on institutions to manage carefully their program portfolios, particularly within a context of greater accountability and more precise institutional objectives.

Research I at FIU

In response to this changing higher education environment in Florida, FIU's Provost initiated a process of self-examination and discussion about its mission, goals and programs. Known as "Focus," the effort was launched during the 1998-99 academic year and explicitly recognized the new opportunities presented for research university status as a result of Chancellor Herbert's classification system and President Maidique's challenge to accelerate institutional movement toward Research I status.

FIU's Provost stated that for FIU to be successful in addressing these challenges, the University community needed to consider a more "focused" approach to its research, pedagogy and service. This new focus could help FIU to accelerate its drive to establish itself as a Research I university even while enhancing the quality of undergraduate education. Three specific levels of initiative were outlined and discussed in a variety of faculty fora, including Faculty Senate and special hearings at both University Park and North Campus:

- the development of a thorough assessment of the steps necessary to accelerate its drive for Research I status;
- the development of a focused site strategy for academic programs;
- and the development of a pro-active academic analysis, planning and accountability initiative to focus investment in areas that reinforce the institution's ability to meet its research and enrollment objectives.

Additionally, the provost convened a new working group of chairs and school directors–the G-51–to discuss institutional and unit objectives. A year–long review of graduate studies was carried out by Dean Richard Campbell and a committee of faculty members.

This process has also coincided with the Southern Accreditation of Colleges and Schools (SACS) self-study and accreditation site review–to occur in February, 2000. A major component of this continuing self-examination will be an enhanced academic program review process that will deepen the faculty's role in program oversight and evaluation. This review process is currently being developed by the University's Office of Planning and Institutional Research working closely with faculty and administrators.

The Health Professions and Higher Education in the 1990s

If the decade of the 1990s brought greater accountability and introspection to higher education and FIU, then the same was certainly true for the health industry. Throughout this sector, there has been a continuing tumult as a result of the movement toward managed care and the transformation of health care financing. During the early part of the decade, the public debate over health care was widespread and heavily politicized. This was followed by a significant, bottoms-up reform movement led by consumers and the industry itself. Now, the public debate has resurfaced as the costs and benefits of reform are beginning to reveal themselves.[12]

Parallel to these developments, the Pew Health Professions Commission initiated a set of assessments about the future of health professions education in the United States. The assessments are thorough and authoritative. In summary:

- In its first report (1991), the Commission outlined 17 competencies for health practitioners for the year 2005, and developed a framework for changing relationships between universities and their communities. The Commission also stated that accreditation "often impede[s] change within the health professional schools rather than [encouraging] change" (p. 13-14). [13]
- Two years later, the Commission repeated its recommendation on the importance of federal policy to stimulate the use of outcome measures in accreditation. It also included some discipline-specific recommendations regarding accreditation for allied health and for dentistry, and general suggestions to integrate competencies into the disciplinary education programs.
- In *Critical Challenges: Revitalizing the Health Professions for the Twenty-first Century* (Pew Health Professions Commission, 1995), the Commission focused on the changing health system and the resulting changing needs for health professions workforce preparation. According to the document, "change is moving across the United States at every level of the health care system...and its pace is uneven–rapid in areas where market forces work freely, glacial in academic and bureaucratic arenas, but it is inexorable." This evolving system, according to the Commission needed emphasis on *better management, greater accountability, and more effective and efficient resource use* [emphasis added].[14]

---

[12]David Blumenthal, "Health Care Reform at the Close of the 20th Century," *The New England Journal of Medicine*, June 17, 1999, Vol. 340, No. 24.

[13]The goals of accreditation and the means for achieving those goals needed to be reconsidered, the Commission recommended. The Commission also suggested that schools of health professions assess curricular effectiveness in order to monitor and improve program quality, that professional associations work closely with accreditors and educators, and that government encourage accreditation policies providing outcome-based standards of performance.

[14]This study predicted that the emerging demand driven system in health care and health professions practice will create a new reality, including "...closure of as many as half of the nations hospitals and loss of perhaps 60% of

The document identified four issues of importance: it suggested that education should place more emphasis on producing providers with the qualities of "superb generalists;" it questioned the fragmented regulatory frameworks that oversee entry-to-practice requirements for licensed health professionals; it argued that the subsidy for education that is tied to care delivery must be broken and in the process there should be reductions in professional training capacity; finally, it stated that "...just as the health care system will be accountable for cost...these same standards will increasingly be demanded from educational programs. This will mean changes in the skills, competencies and knowledge base of all health professionals, the process by which education is regulated, the length of education and the costs of education."[15]

It also boldly stated that "...traditional accreditation serves as an impediment, real or imagined, to changing education; and it has outlived its current social usefulness."

- In 1996, the Task Force on Accreditation of Health Professions Education was created to provide policy analysis and recommendations on health professions accreditation. This national Task Force studied the issues, and opportunities in accreditation. It promoted dialogue with accreditation stakeholders: educators, accreditors, professionals, consumers, and government; it was also tasked with recommending policies, strategies, and specific actions for the improvement of health professions education accreditation. It pointed to trends that are shaping health care and professional practice, and identified 21 competencies for practice in the next century.
- A follow-up report, *Strategies for Change and Improvement* (1999), provided a set of recommendations intended to make accreditation a more productive and positive force in health professions education. Among the recommendations: "accreditation must reward innovative methods to enhance efficiency, minimize waste and duplication, and streamline assessment processes."[16]

The findings of the Pew Commission studies have important implications for the preparation of health professionals and limits of the accreditation process. Their essential message is that new approaches to training health professionals will be important for competitiveness in the 21st century.

Medical Laboratory Sciences

---

hospital beds, massive expansion of primary care in ambulatory and community settings, a surplus of 100,000 to 150,000 physicians as the demand for specialty care shrinks; and consolidation of many of the over 200 allied health professions into multi-skilled professionals as hospitals and health systems re-design their service delivery programs and fundamental alternatives of the health professional schools and the ways in which they organize, structure and frame their programs of education, research and patient care..."(p. 2).

[15]The Third Report of the Pew Health Professions Commission, *Critical Challenges: Revitalizing the Health Professions for the Twenty-First Century (*December 1995), p. 23-27.

[16]University of California, Center for the Health Professions, *Strategies for Change and Improvement: The Report of the Task Force on Accreditation of Health Professions Education* (University of California: June 1999), p. v.

From its inception, the Department of Medical Laboratory Sciences (MLS) at FIU has had as its objective the preparation of technologists to work in the community's hospital laboratories. The Department offers an undergraduate program accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) leading to a B.S. in Medical Technology (BSMT). It also provides a graduate degree—an MS in Medical Laboratory Sciences. Students can receive a minor and a certificate in clinical chemistry, clinical microbiology, hematology and immunohematology.

The department is staffed by seven tenured faculty–two full, four associates, and one assistant professor. The department has one administrative secretary, and one laboratory manager. With its laboratory-based instructional components, the program is limited access enrollment. Given that the state of Florida must license health professionals, the Florida Board of Clinical Laboratory Personnel plays a key role in certifying medical laboratory graduates who seek employment as Medical Technologists (MT). The pass rate for FIU students has had great variability in the decade of the 1990s, ranging from a low of 68% in 1992 to a high of 98% a year later. However, there have been quite small numbers of FIU students taking the exam.

Med Laboratory's evolution as a department has had numerous milestones. A positive June 1988 review by the State University System led to the implementation of the MS in Medical Laboratory Sciences. However, this review warned that research space was at a premium and suggested that the program be placed near the laboratories in the Department of Biology as a means to share expensive research equipment and avoid facilities duplication.[17] The National Accrediting Agency for Clinical Laboratory Sciences review reaccredited the program in 1991 for an additional seven years–the maximum allowable period. However, it did point to low class size as a problem and acknowledged that "limited space" had an impact on faculty research.[18]

In its response to the 1991 review, the MLS faculty stated the following: "Like the site visit team, we too are concerned about enrollment in our program. Despite our efforts to increase recruitment both in the community and on campus, our numbers have declined over the past few years. We appreciate the site visitors [sic] suggestions and fully intend to make recruitment one of our top priorities. "

However, just as the 1990s was marked by paradigm shift in higher education, at Florida International University, as well as in the health professions, so conflict marked the MLS program. But, the program's difficulties were neither related to the accelerated speed of movement toward a national research university nor to the great debates of national health care policy. Rather, they focused on a variety of issues: long-standing inter-personal conflicts, continuing low enrollment, tenure and promotion disagreements, disputes over student evaluations, and struggles with Dean William Keppler and Provost James A. Mau. At one point in 1992, the Provost met with the faculty to address the internecine difficulties. The Provost's views were as follows:

---

[17]State University System of Florida, *Allied Health Program Review* (Tallahassee: State University System of Florida, June 1988, p. 45.

[18]Medical Technologist Program Site Visit Report, June 12, 1991.

I wanted to come here today because I have heard from a variety of sources about problem after problem in the department–from faculty, from students, from Dean [William] Keppler, from [Associate Vice Provost] Judy Blucker, who has now met with every faculty member about one or another problem.

Dr. Mau offered the faculty some "guidelines" to restore collegiality in the department:

- *behave professionally/fairly;*
- *do not involve students;*
- *focus on issues and policies, not personalities;*
- *all [faculty] have responsibility to contribute to the orderly day-to–day functioning of the department*

At this meeting, the Provost informed the faculty that Medical Laboratory Sciences was "one of the most costly programs in the University" and that they needed "more majors."[19] At the behest of the Provost, a consultant was invited to make recommendations to address difficulties in the department. The consultant found that the department's governance mechanism was either ill-conceived or non-existent with little ability to address such basic issues as the role of research, the nature of teaching assignments and the responsibility to advise students. The consultant also pointed to the following dilemma, echoed earlier by Provost Mau:

The second major problem area may best be described as one of problems between and among various personalities in the department, resulting in poor interpersonal communications or precluding communications entirely. There appear to be interpersonal problems among various faculty members which go way beyond the issues. Although it is possible that the situation may be beyond help, I believe the current situation can be corrected to at least the point where faculty are civil to each other and can relatively calmly discuss issues.

One symptom of this problem area is the behavior which is exhibited in departmental faculty meetings, which is preventing the department from resolving issues and making critical decisions. Someone (e.g. the department chairperson or the dean) needs to take a strong hand in running faculty meetings, perhaps by announcing ground rules regarding standards of behavior at the beginning of meetings and by telling faculty members when their behavior is inappropriate or unacceptable....[20]

The department subsequently went through a 12-hour workshop on team building, identified two faculty to serve as interim co-chairs and asked the Dean to begin a national search for a new chair. Although the issues appeared to be resolved, valuable time was lost in addressing the growing pressures to take seriously the University's new research mandate and the growing enrollment difficulties.

[19]From the Medical Laboratory Sciences files of Provost James A. Mau

[20]Memorandum from Dana Farrow to Dean William Keppler, March 27, 1994.

In August 1994, Judith Blucker was appointed as Acting Dean of the College, succeeding Dr. Keppler. Contrary to the expectations of the MLS faculty, Dr. Blucker was given explicit instructions by Provost Mau to find a chair from within the ranks of the department. Given the low enrollments in MLS, both Drs. Blucker and Mau believed that a new faculty member, even as Chair, could not be justified. The Acting Dean explained this to the department. The message was clearly sent that enrollment was a problem and needed to be addressed. The new Acting Dean also made it clear that another local private institution of higher education was aggressively pursuing medical technicians (A.S. degrees) who might want to qualify for their MT certification.

The 1996-1997 State University System Review raised serious questions about the longterm viability of the program. It outlined specific strengths and weaknesses. On the positive side, the review identified "1) an extremely well-qualified faculty with diverse strengths; 2) a wonderfully diverse (although small) student body; 3) high job placement of graduates; and 4) a more than adequate allocation of laboratory and research space."

In reference to the Program's weaknesses, the review stated that the "major concern revolves around the high cost and low productivity required to deliver the undergraduate and graduate program"–pointing to the then three year average cost per FTE student of $18,369 and low faculty/student ratio of 5:1. The review suggested that "serious discussions related to the potential future of the program" were necessary.

It also pointed to recurring governance issues that had begun to fester once again. It urged "more involvement of the entire faculty in serving as advisors at both the undergraduate and graduate levels and for strategic planning which includes meeting community based needs, team development among faculty, and long range planning for utilizing emerging technologies."[21]

Finally, echoing the national debate over training for health professionals, the report concluded by calling for a plan to address the changing health care environment.[22] It suggested that "increased cost effectiveness, curriculum that reflected the needs of the community, and a strong focus on student needs should be major components of this initiative."[23]

In preparation for the renewal of accreditation (in 1998), MLS made it clear that the deficit in research space had been addressed.[24] According to the analysis, "...the department has six research laboratories (approximately 2,790 sq. ft.) to support faculty and graduate student research and pointed to the need to consolidate space in one location" as the priority space issue.[25]

---

[21]Consultants' Report, *Allied Health: Part I: Program Review* (Tallahassee: State University System of Florida, October 1997)

[22]The MLS self-study document did acknowledge the Pew initiative. However, it was largely dismissed as a matter that pertained more to the Board of Clinical Laboratory Personnel than to the Department. See FIU, *Allied Health BOR Program Review Report* (September 4, 1996), p. I-8.

[23]Ibid., p. 16.

[24]Vice President Breslin reports that his office invested $178,000 to equip these labs during the 1990s. He also recalls that Provost Mau was critical of this investment.

[25]Self Study Report for Renewal of Accreditation for Medical Technology Program (Miami: FIU, January 1998), p. 89.

However, with a new Dean (Dr. Delois Weekes) in 1997 came a new mandate: use or lose the underutilized research labs and develop a strategic plan that focused on enrollment growth and funded research. The Dean also advised the provost of her concerns about the high cost and low productivity of MLS and asked the Vice President for Research to give her faculty another opportunity to take advantage of the six research labs.

When Dean Weekes accepted a new position in the University in the summer of 1999, Provost Mark Rosenberg requested that the College of Urban and Public Affairs and the College of Health Sciences explore a confederation and possible merger. In this context, he also met with faculty from MLS in early August 1999 to inform them of his decision to request Board of Regents authorization to terminate the bachelors and masters degrees in Medical Laboratory Sciences. In accordance with the BOR/UFF Collective Bargaining Agreement, faculty were formally notified of this initiative, and asked to prepare a plan to graduate all remaining students in the two programs.

Medical Laboratory Sciences (MLS) Program Productivity Analysis

Given FIU's commitment to research competitiveness and the growing accountability placed on all academic programs in the University, it should be clear that high cost-low productivity programs are subject to careful oversight. To insure excellence, the University's limited resources should be directed to those programs that are productive and accountable over time. The MLS program has a decade-long record of underperformance.

The performance analysis of the Florida International University Medical Laboratory Sciences programs will focus on the following issues:

- The enrollment and degree production history of the FIU MLS programs.
- The cost of the FIU MLS programs as compared to the other FIU Health Sciences programs.
- The productivity of the FIU MLS programs as compared to the other FIU Health Sciences programs and other SUS MLS programs.
- The sponsored research and peer reviewed scholarly activity productivity of the FIU MLS faculty.
- The manpower and academic preparation of medical laboratory technology professionals.

Enrollment and Degree Production

The FTE enrollment and the degree productivity per ranked faculty has been a major concern of the MLS programs since the inception of the masters program that was initially funded with CUP resources. Prior to CUP funding the MLS program had four faculty. During the three-year period following the initial CUP funding, three additional faculty were added. The low productivity of the program was cited as a problematic issue in both the 1991 national accreditation review and in the 1996-1997 BOR program review. Each of the three deans responsible for MLS for a decade (Keppler, Blucker, Weekes) met with the MLS departmental leadership and faculty to emphasize the need to increase productivity in light of the program's high cost as compared to other programs in the College as well as the University. Provost Mau also told MLS faculty directly of the critical need to increase the number of majors.

Table 1 provides a ten-year summary of the number of baccalaureate and masters degree seeking students enrolled in the MLS programs. The number of degree seeking students has ranged from a low of 25 in 1989 to a high of 59 in 1998. Based on the number of regular faculty, the student to faculty ratio ranges from a low of 4.2 to 1 to a high of 8.4 to 1.

TABLE 1
Florida International University
Ten Year History of Average Fall Headcount per Ranked Faculty
For Medical Laboratory Sciences Department

Year	Ranked Faculty	Baccalaureate Students	Masters Students	Average Students per Ranked Faculty
1989	6	24	1	4.2
1990	7	29	10	5.6
1991	8	32	15	5.9
1992	6	31	14	7.5
1993	7	36	12	6.9
1994	7	39	8	6.7
1995	7	37	12	7.0
1996	7	25	16	5.9
1997	7	24	13	5.3
1998	7	43	16	8.4
Summary	7	32.0	11.7	6.3

Source: FIU Student Profile Reports

Table 2 provides a ten-year summary of the number of undergraduate and graduate FTEs generated by the MLS programs. The number of FTEs has ranged from a low of 20.27 in 1990-1991 to a high of 50.23 in 1998-1999. The annual FTE productivity of the program has increased during the past five years and reviews indicate that the quality of instruction, at least at the undergraduate level, is high. However, with the current seven regular faculty, the FTE student to faculty ratio is only 7.18 to 1. This ratio is the lowest in the College of Health Sciences and the lowest of all SUS MLS programs.

TABLE 2
Florida International University
Ten Year History of Annual FTE by Level
For Medical Laboratory Sciences Department

Year	Ranked Faculty	Undergraduate	Graduate	Total	Average Annual FTE per Ranked Faculty
1989 - 1990	6	19	3.53	22.53	3.76
1990 - 1991	7	20.27	0	20.27	2.90
1991 - 1992	8	18.92	6.99	25.91	3.24
1992 - 1993	6	20.07	5.77	25.84	4.31
1993 - 1994	7	20.12	4.9	25.02	3.57
1994 - 1995	7	28.94	5.93	34.87	4.98
1995 - 1996	7	26.39	8.05	34.44	4.92
1996 - 1997	7	26.94	8.52	35.46	5.07
1997 - 1998	7	33.84	8.34	42.18	6.03
1998 - 1999	7	38.92	11.31	50.23	7.18
Average	7	25.34	6.33	31.68	4.60

Source: FIU Annual FTE Reports

Table 3 provides a ten-year summary of the number of baccalaureate and masters degrees conferred from the MLS programs. The number of baccalaureate degrees has ranged from a low of 1 to a high of 18 with an average of 10.5 per year. The number of masters degrees has ranged from a low of 0 to a high of 6 with an average of 2.6 per year. Using the combined total of baccalaureate and masters degrees conferred, the average number of degrees awarded annually per faculty has only exceeded 3 (3.1) once. The total number of degrees increased from 15 in 1997-1998 to 22 in 1998-1999 while other programs in the SUS experienced decreases. With seven regular tenured faculty, however, as compared to two or three at the sister programs, the yearly average ratio of 1.9 degrees to one faculty is the lowest of all SUS MLS programs.

TABLE 3
Florida International University
Ten Year History of Average Number of Graduates per Ranked Faculty
For Medical Laboratory Sciences Department

Year	Ranked Faculty	Baccalaureate Degrees	Masters Degrees*	Average Conferred per Ranked Faculty
1989 - 1990	6	11	na	1.8
1990 - 1991	7	6	0	0.9
1991 - 1992	8	7	3	1.3
1992 - 1993	6	10	4	2.3
1993 - 1994	7	1	2	0.4
1994 - 1995	7	13	6	2.7
1995 - 1996	7	13	0	1.9
1996 - 1997	7	13	2	2.1
1997 - 1998	7	13	2	2.1
1998 - 1999	7	18	4	3.1
Average	7	10.5	2.6	1.9

* This program was approved for implementation in January 1988

Source: FIU Degrees Awarded Report

A Comparison of Program Expenditures

Table 4 provides a summary of the 1998-1999 annual salary and benefits expenditures per FTE student for the College of Health Sciences programs by department. These data revealed the disparate cost differential between the MLS program and the other programs in the College. The current MLS salary and benefits cost of $12,439 is nearly two and one half (2.5) times the college average and more than fifty percent higher than the Public Health program, which is solely graduate. Further, the 1998-1999 MLS cost per FTE is the lowest realized during the past seven years. The average FTE salary and fringe expenditures have ranged from a high of $16,915 in 1996-1997 to the current figure of $12,439.

TABLE 4

Florida International University
1998-1999 Annual Salary and Benefit Expenditures Per FTE Student
For College of Health Sciences Programs By Department

Department	Annual FTE Faculty	Annual FTE Students	Annual Expenditures*	Expenditures Per FTE Student
Dietetics & Nutrition	10	290	$801,423	$2,764
Health Information Management	2	41	$100,050	$2,440
Nursing	25	348	$1,786,270	$5,133
Physical Therapy	9	125	$828,906	$6,631
Occupational Therapy	10	137	$815,169	$5,950
Public Health	6	63	$511,608	$8,121
Medical Laboratory Sciences	**7**	**50**	**$621,949**	**$12,439**
College Summary	69	1054	$5,465,375	$5,185

*The annual expenditures include the salaries and benefits of those associated with the departmental programs.
Source: FIU Budget Analysis Historical Review - Academic Affairs

A Productivity Comparison of FIU MLS programs with other SUS MLS programs and FIU Health Science Programs

Table 5 provides a three-year history of the number of faculty and the number of degrees awarded for each of the SUS MLS programs. The productivity of the MLS program as compared to the other programs in the College of Health Sciences has been a problem the deans of the College of Health have struggled with since the inception of the masters program. Although low student credit hour productivity and student enrollments have been the main focus of the College, the direct cost differential between MLS program and other health science programs has been a major concern for each successive dean throughout this past decade.

TABLE 5
State University System Comparison
Medical Laboratory Sciences and Medical Technology
Fall Enrollment, Degrees Conferred and Number of Faculty

			1996-97	1997-98	1998-99
Florida International University	Enrollment*	Bach.	25	24	43
Med. Tech (Bach.)		MS	16	13	16
	Degree	Bach.	13	13	18
		MS	2	2	4
	Faculty		7	7	7
University of West Florida	Enrollment		58	56	48
Med. Tech	Degree	Bach.	12	17	9
	Faculty		2	2	2
University of Central Florida	Enrollment		59	37	44
Med. Lab Science/Pending	Degree	Bach.	16	15	15
	Faculty		3	3	3
Florida Atlantic University	Enrollment		65	66	54
	Degree	Bach.	20	13	11
	Faculty		3	3	3
University of South Florida	Enrollment		103	78	68
Med. Tech (Bach.)(AA)	Degree	AA	2	1	0
		Bach.	16	15	7
	Faculty		3	3	3
SUS Summary	**Enrollment**	**Bach.**	**344**	**278**	**261**
		MS	**16**	**13**	**16**
	Degree	**Assoc**	**2**	**1**	**0**
		Bach.	**77**	**73**	**60**
		MS	**2**	**2**	**4**

*Fully admitted students only

Table 6 provides a summary of the average number of baccalaureate and masters degree seeking students by program in the College of Health Sciences per ranked faculty. These data reveal that the MLS program currently has only 8.4 majors per faculty as compared to more than twenty-one (21) for the other programs. The Public Health program, which is a masters program, has 12.5 majors per faculty member.

TABLE 6
Florida International University
Average Number of Students per Ranked Faculty
For College of Health Sciences By Department Fall 1998

Department	Ranked Faculty	Baccalaureate Students	Masters Students	Doctoral Students	Average Students per Ranked Faculty
Health Information Management	2	86	na	na	43.0
Nursing	25	426	166	na	23.7
Occupational Therapy	10	158	69	na	22.7
Physical Therapy	9	188	12	na	22.2
Dietetics & Nutrition	10	155	49	14	21.8
Public Health	6	0	75	na	12.5*
Medical Laboratory Sciences	**7**	**43**	**16**	na	8.4
College Summary	69	1056	387	14	21.1

*Graduate Program only
Source: FIU Fall Enrollment Report

Table 7 provides a summary of the FTE student per ranked faculty. Since a FTE student is a function of courses sections taught and course section enrollment, this factor is a measure of instructional workload. With the exception of Public Health, a graduate program, the MLS FTE to faculty ratio ranges from one-fourth (¼) to one-half (½) of that of the other programs in the college. From an analysis of these data, it is clear that even though the MLS productivity increased in 1998-1999, the MLS current annual average of 7.1 FTEs per faculty is less than fifty percent (50%) of the college average of 15.3.

TABLE 7
Florida International University
1998-1999 Annual FTE Students per Ranked Faculty
For College of Health Sciences By Department

Department	Annual FTE Faculty	Annual FTE Students	FTE Student per Ranked Faculty
Dietetics & Nutrition	10	290	29.0
Health Information Management	2	41	20.5
Nursing	25	348	13.9
Physical Therapy	9	125	13.9
Occupational Therapy	10	137	13.7
Public Health	6	63	10.5
Medical Laboratory Sciences	**7**	**50**	**7.1**
College Summary	69	1054	15.3

Source: FIU Annual FTE Report

Table 8 provides a summary of the number of graduates per ranked faculty for College of Health Sciences programs for 1998-1999. These data revealed that the number of degrees per ranked faculty ranged from a low of 3.1 for MLS to a high of 17.5 for Health Information Management. Even though the MLS program increased their degree productivity in 1998-1999, the College average of 7.6 degrees per faculty member is more than two and one-half times that of the MLS program.

TABLE 8
Florida International University
Average Number of Graduates per Ranked Faculty
For College of Health Sciences Programs By Department 1998/1999

Department	Ranked Faculty	Baccalaureate Degrees	Masters Degrees	Doctoral Degrees	Average Degrees Conferred per Ranked Faculty
Health Information Management	2	35	na	na	17.5
Nursing	25	156	80	na	9.4
Occupational Therapy	10	56	19	na	7.5
Physical Therapy	9	64	3	na	7.4
Public Health	6	na	39	na	6.5
Dietetics & Nutrition	10	45	6	0	5.1
Medical Laboratory Sciences	7	18	4	na	3.1
College Summary	69	374	151	0	7.6

Source: FIU Degrees Awarded Report and Operating Budget

Tables 9, 10 provide information related to average class size by level for the College of Health Sciences departments. **Table 9** provides the average undergraduate class size for the College of Health Sciences. The MLS program average of 17.7 is less than sixty-three percent (62.45%) of the college average (27.7). **Table 10** provides similar information for the graduate classes. These data show that the MLS average of 7.0 is less than one-half of the college average (14.1). The comparison of class size is clearly a function of enrollment and degree requirements. Prior to the growth in the enrollment in 1998-1999, these ratios were even more alarming.

TABLE 9
Florida International University
Average Undergraduate Lecture/Lab Class Size for College of Health Sciences
By Department Fall 1997 - Spring 1999

Department	Fall 1997	Spring 1998	Fall 1998	Spring 1999	Four Term Average
Public Health	na	na	na	na	na
Dietetics & Nutrition	42.4	29.7	40.5	30.5	35.8
Health Information Management	39.7	40.3	31.6	27.4	34.8
Occupational Therapy	36.4	28.6	34.9	30.6	32.6
Physical Therapy	27.4	22.2	29.2	22.8	25.4
Nursing	25.0	19.7	19.3	16.9	20.2
Medical Laboratory Sciences	**15.6**	**13.4**	**19.6**	**22.0**	**17.7**
Departmental Average	31.1	25.7	29.2	25.0	27.7

Source: FIU Average Class Size Report

TABLE 10
Florida International University
Average Graduate Lecture/Lab Class Size for College of Health Sciences
By Department Fall 1997 - Spring 1999

Department	Fall 1997	Spring 1998	Fall 1998	Spring 1999	Four Term Average
Health Information Management	na	na	na	na	na
Nursing	25.0	16.3	18.3	20.8	20.1
Public Health	16.3	16.5	20.2	17.0	17.5
Occupational Therapy	12.5	9.6	16.4	19.5	14.5
Physical Therapy	na	22.0	9.7	11.6	14.4
Dietetics & Nutrition	7.9	12.4	11.4	11.8	10.9
Medical Laboratory Sciences	**6.4**	**5.0**	**7.4**	**9.2**	**7.0**
College Summary	13.6	13.6	13.9	15.0	14.1

Source: FIU Average Class Size Report

Table 11 provides a summary of the annual number of regular lecture and laboratory course sections taught and the corresponding number of students served by the MLS faculty for the past three academic years. These data revealed that the faculty averaged approximately eleven course credits per year. The number of students served ranged from a low of 21 to a high of 96. The average was less than seventy students per faculty member.

TABLE 11
Florida International University
Number of Lecture and Laboratory Sections Taught and Enrollment
For Medical Laboratory Sciences Department

	Fall & Spring 1996-1997			Fall & Spring 1997-1998			Fall & Spring 1998-1999		
7 Faculty Members	**Lecture Credit Hours**	**Lab Credit hours**	**Students**	**Lecture Credit Hours**	**Lab Credit hours**	**Students**	**Lecture Credit Hours**	**Lab Credit hours**	**Students**
Department Academic Year Average	10.0	1.4	60	10.4	4.2	75	9.3	1.8	63

* Lecture and laboratory courses with the same number were counted as one section
Source: FIU Instruction and Research Data file

Sponsored Research and Scholarly Publications

As the University moves to the Research I status, faculty research and scholarly productivity have become important measures in assessing a faculty's contribution to the University's accomplishments. Although an academic unit can contribute in numerous ways, a graduate program whose mission includes sponsored research and scholarly publications must be measured by those parameters. With the inception of CUP funding and the implementation of the master's degree in Medical Laboratory Sciences, the expectation of the MLS faculty included substantial sponsored research funding and related peer reviewed publication productivity.

Table 12 provides a ten-year history of the externally funded sponsored research awards received by the seven MLS faculty. Of the seven regular faculty, only four have received sponsored research funding during the past ten years. A majority of the sponsored research activity for two of the faculty occurred during the first half of the decade. The most successful faculty member has worked with the Biology faculty. These interdisciplinary approaches appear to be the wave of the future. This data clearly delineate underperformance in the area of sponsored research activity of this academic unit.

Table 12
Florida International University
Ten Year History of Externally Funded Sponsored Research
For Medical Laboratory Sciences Department by Faculty

Faculty Member	1989 1990	1990 1991	1991 1992	1992 1993	1993 1994	1994 1995	1995 1996	1996 1997	1997 1998	1998 1999	Total
Faculty A	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Faculty B	0	20,000	0	90,786	0	0	0	0	0	0	$110,786
Faculty C	0	97,634	5,000	0	0	0	0	0	0	0	$102,634
Faculty D	0	0	0	0	0	0	0	0	0	0	$0
Faculty E	0	0	0	0	0	0	0	0	0	0	$0
Faculty F	0	0	800	0	0	0	0	104,047	89,777	97,791	$292,415
Faculty G	0	0	0	0	0	0	0	0	0	8,192	$8,192
Summary	$0	$117,634	$5,800	$90,786	$0	$0	$0	$104,047	$89,777	$105,983	$514,027

Source: FIU Division of Sponsored Research

Table 13 provides a ten-year history of the externally sponsored research proposals submitted by the MLS faculty. Forty-two proposals were submitted during the decade. However, only four of the seven faculty have been active in sponsored research activities. Of the 42 proposals, twelve were funded for a funding yield rate of approximately 29 percent. This data revealed that the average number of proposals submitted per regular faculty was less than one per faculty-year. Further, only five proposals were funded during the last five years of which four were awarded to one faculty member who has formed an interdisciplinary partnership.

Table 13
Florida International University
Ten Year History of Externally Sponsored Research Proposals Submitted
For Medical Laboratory Sciences Department by Faculty

Faculty Member	1989 1990	1990 1991	1991 1992	1992 1993	1993 1994	1994 1995	1995 1996	1996 1997	1997 1998	1998 1999	Total	Funded Proposal
Faculty A	0	0	0	0	0	0	0	0	0	0	0	0
Faculty B	0	3	1	1	0	0	1	0	0	0	6	2
Faculty C	2	4	1	0	0	0	1	1	0	1	10	3
Faculty D	0	0	0	0	0	0	0	0	0	0	0	0
Faculty E	0	0	0	0	0	0	0	0	0	0	0	0
Faculty F	1	3	2	0	0	3	1	2	1	2	15	6
Faculty G	1	4	2	0	0	0	1	2	0	2	12	1
Total	4	14	6	1	0	3	4	5	1	5	43	12

Source: FIU Division of Sponsored Research

Table 14 provides a ten-year history of the number of peer reviewed publications by faculty members. These data revealed that the average number of peer reviewed publications is approximately six per faculty member over the decade. The total research and scholarly activities of the MLS seven tenured faculty are below the university's expectations for a department housing a graduate degree program. Per capita publication by MLS faculty fell well below average per capita publication at Research II public universities, which during 1986-1990 averaged 1.81. Using this standard, it is assumed the seven tenured faculty would have produced 126 publications during the 1990s. Based on this standard and the unit's publication record the unit achieved less than one-third of the standard. Of the thirty-eight peer-reviewed publications, less than forty percent have been published over the last half of the decade.

TABLE 14
Florida International University
Ten Year History of Peer Reviewed Publications*
For Medical Laboratory Sciences Faculty by Category

Faculty Member	Published Articles	Published Abstracts	Accepted in Press	Total
Faculty A	1995	1992	0	2
Faculty B	1990, 2-1993	1992, 2-1993, 1997	0	7
Faculty C	1991, 2-1993, 2-1994, 1996, 1997, 1999	0	0	8
Faculty D	0	0	0	0
Faculty E	0	0	0	0
Faculty F	1992,1997, 2-1998	1991, 3-1994, 2-1995, 1998, 1999	0	12
Faculty G	1990, 1992, 1993, 1994, 1995, 1998	1990, 1992, 1996	0	9
Summary	22	16	0	38

* These figures do not include presentations, book chapters, or conference/symposium proceedings.

Source: Faculty Resumes

Table 15 provides a history of the externally funded scholarship grant proposals. These data revealed that three grants were submitted and funded during the five-year history. These grants provided $46,520 in scholarships for minority students. Although these grants do not contribute to the sponsored research productivity, this contribution to the department's effort to support minority students is to be commended.

TABLE 15
Florida International University
Ten Year History of Externally Funded Scholarship Support
For Medical Laboratory Sciences Department by Faculty

Faculty Member	1989 1990	1990 1991	1991 1992	1992 1993	1993 1994	1994 1995	1995 1996	1996 1997	1997 1998	1998 1999	Total
Faculty A	$0	$0	$0	$0	$0	$0	$6,927	$19,932	$19,661	$0	$46,520
Faculty B	0	0	0	0	0	0	0	0	0	0	0
Faculty C	0	0	0	0	0	0	0	0	0	0	0
Faculty D	0	0	0	0	0	0	0	0	0	0	0
Faculty E	0	0	0	0	0	0	0	0	0	0	0
Faculty F	0	0	0	0	0	0	0	0	0	0	0
Faculty G	0	0	0	0	0	0	0	0	0	0	0
Summary	$0	$0	$0	$0	$0	$0	$6,927	$19,932	$19,661	$0	$46,520

Source: FIU Division of Sponsored Research

Degree Production

Ms. Faircloth of the Florida State Department of Health-Licensure Certification unit reported that approximately 13,770 clinical laboratory personnel held professional certification in the State in 1999. While MLS graduates are sought after and valued by a select number of employers, the FIU MLS program is only a minor provider of these professionals.

Table 16 provides an eleven-year summary of the total baccalaureate and masters degrees awarded by this program. These data revealed that the number of graduates ranged from a low of 3 in 1993-1994 to a high of 22 in 1998-1999. More importantly it demonstrates that this profession is not totally dependent on the FIU graduates for providing the necessary person power to ensure the health and welfare of the greater Miami area.

TABLE 16
Florida International University
Eleven Year History of Degrees Awarded
For Medical Laboratory Sciences Programs

Degree Level	1988 1989	1989 1990	1990 1991	1991 1992	1992 1993	1993 1994	1994 1995	1995 1996	1996 1997	1997 1998	1998 1999	Total
Bachelors	10	11	6	7	10	1	13	13	13	13	18	70
Masters	n/a	n/a	0	3	4	2	6	0	2	2	4	14
Total	10	11	6	10	14	3	19	13	15	15	22	84

Source: FIU Degrees Awarded Reports

An analysis of enrollment and degrees awarded in the history of Medical Laboratory Science programs throughout the State and nation revealed major fluctuations in both enrollment and degrees conferred from year to year. These fluctuations have contributed to unreasonable expenditures per FTE student and degree awarded. In 1998 the national professional accrediting agency, the American Society of Clinical Pathologists, reported the anticipated closing of approximately thirty medical technology programs. In addition to the anticipated closing of the medical technology programs, 13.8% of the 247 programs anticipated curriculum changes. The employment rate for medical technology graduates for the 1997 and 1998 period ranged from a low of seventy percent (70%) in region 2 to a high of ninety-six percent (96%) in region 6. The employment rate for the region (3) in which FIU is located was approximately ninety-four (94%) for the two-year period.

The Florida Education and Training Placement Information Program (FETPIP) reports revealed that one out of five masters graduates and approximately one out of ten baccalaureate graduates from the FIU 1996 and 1997 graduating classes were not employed in the State of Florida. The FETPIP agency could not determine the proportion of the graduates who were employed and held positions in the medical technology field. It is important to note that the 1997 medical technology program review team reported that a "major concern is the graduate curriculum. When interviewing students, almost every graduate student had major concerns regarding limited and/or no clinical education experience. They were highly complimentary of the faculty's knowledge and ability in didactic instruction. However, the program permitted little opportunity for any clinical/research experience. Consequently, there were serious concerns about job placement. In addition, advising seemed to be a major issue at the graduate and undergraduate level. The graduate students shared that no one had told them of the possibilities of integrating a minor and/or certificate in one of the four specialties offered by the program. There was some belief that these certificates were the key to potential job placement, yet their existence was not widely known by the graduate students.

Similarly, the undergraduate students noted that there was only one advisor and that the other faculty members were not helpful in advising, especially developmental advising, i.e., helping with issues such as job placement and career exploration."

Conclusion

Based on the information provided, it is clear that the MLS program is a high-cost, low productivity program. It is also clear that this program has underperformed for a full decade in key areas of enrollment, degree production, funded research, and scholarly production. Further, the program has been continually and repeatedly informed about the need to improve productivity. Program reviews, accreditation studies, meetings with three deans and a provost, and a decade-long national debate on health and on the health education professions have pointed to the perils of low production, high cost and the urgent need for reform and innovation.

Fractured by personality conflicts and divisive behavior since its inception, MLS has been unable to respond. These difficulties have clearly undermined any capacity for performance at the high level called for by FIU faculty and university administrators since the late 1980s. Although some high cost programs may be necessary when other productive programs are dependent on these programs for their essential interdisciplinary support, that is not the case for MLS.

Therefore, at this time I am recommending that the masters and baccalaureate in medical laboratory sciences at FIU be discontinued as soon as possible.

Contingencies

If there is an unmet need for professionals in this region that cannot be met by other institutions in the state and nation, FIU will consider developing an interdisciplinary curriculum that will prepare individuals to sit for the MT certification examination.

FIU administrators have held several meetings with representatives from a local health concern. Early conclusions of these discussions seem to support the future possibility of a partnership for the training of medical technologists. This partnership could enable FIU students to take a reconstituted and revised interdisciplinary program of study housed in an appropriate academic department. The proposal provides for cost-sharing of the program's expenses and is consistent with Pew commission recommendations on cost-sharing and efficiency. Additionally, certified laboratory staff would teach the medical technology laboratory practicums required by national certification.

We are optimistic that this community partnership may be a solution for meeting the medical technology needs of the South Florida health professions as well as providing continued employment for some of the current FIU Medical Technology faculty.