



August 1, 2012

Michael Fountain, Ph.D.
Entrepreneurship in Applied Technologies M.S. Program
College of Business
BSN 3403

The Graduate Council wants to thank you and your faculty for the thoughtful third year program review report. We appreciate your willingness to present your findings to the Council allowing clarification and input into your findings.

Your report is very thorough demonstrating many accomplishments since your initial request for approval. You also indicate that you are planning to expand your program with emphasis on health and healthcare as well as internationally. The Graduate Council commends you on your success. With your permission, the Graduate Council would like to use your submission as a model for future programs. Again, continued success.

Sincerely,

A handwritten signature in black ink that reads "Ruth Bahr". The signature is written in a cursive, flowing style.

Ruth Bahr, Ph.D.
Graduate Council Vice-Chair
2011-2012

cc: Robert Forsythe, Ph.D., Dean, College of Business
Jackie Reck, Ph.D., Associate Dean, College of Business

GRADUATE SCHOOL

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Third-Year Graduate Degree Program Review

Program: **Entrepreneur in Applied Technology (M.S.)**
 Year Approved: **2005**

The Graduate School and the USF Tampa Graduate Council would like to ask you to complete this brief survey of your Graduate Program. This one-time survey, given to all recently approved graduate programs, will provide information about the program's standing and offers opportunities to showcase program's accomplishments in the first few years. Currently, no other mechanism is available to collect this type of information. The Graduate Council will prepare a brief report based on the survey, which will be circulated back to you and kept on file in the Graduate School. Thank you in advance for your assistance with this important project!

PART I: Program Metrics (pre-populated by Graduate School) (Optional comments regarding these numbers may be separately attached.)

Enrollment Statistics	Current Year (2011/2012)*	2010/2011	2009/2010	2008/2009
Applied (info center)	67	115	125	71
Admitted (info center)	45	76	88	61
Enrolled (info center)	26	55	62	42
Degrees Awarded (info center)	19	37	25	19
Time to Degree (if applicable) (info center mean)	*	1.63	1.29	1.12
Total program enrollment (SIF)	102	214	180	101
% students registered full time (SIF)	43	98	77	57
Graduate SCH (SIF) * not available in infocenter by program	712	1524	1322	875
Funded SCH Generated by Program	NOT AVAILABLE BY PROGRAM	----	----	----
Number of graduate faculty** (PROFESSOR, ASSOCIATE PROFESSOR, ASSISTANT PROFESSOR)	3.75	2.75	2.75	2.75
Student: Faculty Ratio (students per faculty)***	31:1	28:1	28:1	20:1

*The current year 2011/2012 is not complete and spring data is not available in Infocenter. Academic year is summer, fall, spring.

**Information not available on Infocenter. Please provide a total number and then please attach a list of names, level (Full, Assoc., etc.), and research areas of these faculty

***Information not available on Infocenter. Please provide.

Part II: Annual Student Success Metrics (populated by the Program)
 (Optional comments regarding these numbers may be separately attached.)

	Current Year (2011/2012)	2010/2011	2009/2010	2008/2009
Professional Presentations by Students				
Student Publications/Creative Works				
Student Funding and Scholarships (including internal awards)				
Other				

Part III: Program Narrative
 In a few sentences:

1. Note any programmatic changes since original approval or last review and why the changes were made (i.e. changes to degree requirements, courses, qualifying exams, theses etc).

None other than cross-listing courses between College of Business and College of Engineering and change of GEB prefix to ENT prefix.

2. Discuss diversity in your program and you are actively involved in promoting this initiative.

We strongly encourage diversity in three forms: undergraduate or graduate degree fields entering our program, gender diversity and ethnic diversity

	2008	2009	2010	2011
Prior Degree Disciplines				
Business/Non-Business	21:79	40:60	56:44	35:65
Ethnicity (White/Minority)	63:44	64:23	59:41	64:36
Gender (Male/Female)	73:27	70:30	69:31	61:39

3. Discuss student "creative works" (publications per student, etc.) captured in Part II above. Our program is a non-thesis, interdisciplinary graduate professional clinical educational and training program. We currently do not track student "creative works".

4. Discuss placement of your recent graduates (e.g., types of employment, admittance to other degree programs). Of our students, to date 28 have been admitted to other graduate degree programs. These are Biomedical Engineering, Material Sciences, Electrical Engineering, Marketing, MBA, Accounting, Finance, Information Systems, Bioethics, Spanish, Global Sustainability, Biotechnology, Medicine, Environmental Sciences, Physics, Public Health and Cancer Biology. In addition an overwhelming number of our students create new enterprises. In our most recent survey approximately 60% of responding entrepreneurship students identified that they had created at least one enterprise either prior to beginning the program or during their educational program here at USF.

5. Identify qualities/metrics of applicants who prove to be successful in your program (e.g., REU experience, experience specific to your discipline, GRE performance). Professional maturity (our students have, on average, over 7 years of relevant professional experience prior to beginning their graduate program), diverse professional backgrounds and prior academic fields of study strongly contribute to the rich interdisciplinary learning environment of the program. We do not currently have a requirement for GMAT or GRE for admission into the program.

Comment succinctly on the following (e.g., 200 words max).

Based on the data in Part I, discuss current enrollment trends, graduation rates, time to graduation, and retention. Provide details on how the program is addressing each of these areas and will correct any deficiencies (i.e. low number of applicants, loss of students etc.)

Our enrollment continues to remain strong with development of numerous dual-graduate degrees, at the Masters and Doctoral levels, linking the MSE with disciplines across campus. Further, many graduate fields of study now either require graduate entrepreneurship courses for successful completion of their programs or have approved them as electives for their graduate programs. Our average time to completion of our program is currently approximately 1.5 years or 3 semesters and our retention of students is strong.

Identify three programs that are considered to be peers.

1. Stanford University
2. MIT
3. Oklahoma State University

Describe how the Program aligns with the strategic goals of USF.

University Strategic Goal	SOA Accomplishments
1. Expanding world-class interdisciplinary research, creative and scholarly endeavors.	<ul style="list-style-type: none"> • Graduate entrepreneurship educational program ranked among the top 25 programs in the United States by Princeton Review and Entrepreneur Magazine • Peer reviewed articles published , including in one of the top management journals • Contract with Pearson Publishing for development of new textbook on Interdisciplinary Technology Entrepreneurship • Hired 1 assistant professor for Fall 2011

<p>2. Promoting globally competitive undergraduate, graduate and professional programs that support interdisciplinary inquiry, intellectual development, knowledge and skill acquisition, and student success through a diverse, fully-engaged, learner-centered campus environment.</p>	<p>The Center for Entrepreneurship faculty, staff and Board of Advisors members engage throughout the year in programs and activities including:</p> <ul style="list-style-type: none"> • Fintech Business Plan Competition • Innovative Technology Challenge • The three “P”s entrepreneurship workshops • Annual Celebration of Entrepreneurship Luncheon • Annual Mentor of the Year Award Program • Bulls New Frontier Entrepreneurship Graduate Organization • USF Collegiate Entrepreneurship Organization (CEO) • Entrepreneurship Alumni Network
<p>3. Expanding local and global engagement initiatives to strengthen and sustain healthy communities and to improve the quality of life.</p>	<ul style="list-style-type: none"> • The Center is completing curricula and preparing to launch its Masters Degree program in Applied Entrepreneurship in Lima, Peru in Spring 2012 • The Center is entering into a Memorandum of Understanding to deliver its Masters Degree program in Applied Technologies, its graduate certificate program in entrepreneurship and continuing professional educational content as a partner with USF Health and Draper Laboratories at the USF Center for Advanced Medical Learning and Simulation (CAMLs) in Tampa, scheduled for launch Fall 2011. • The Center has launched a new, joint dual-graduate degree with the USF School of Sustainability and a dedicated tract with the Masters degree in Global Sustainability dedicated to entrepreneurship and green innovation. • The Center has launched two new undergraduate minors in entrepreneurship: one for business and industrial engineering majors and one for all other undergraduate students across USF colleges.

<p>4. Enhancing all sources of revenue, and maximizing effectiveness in business practices and financial management to establish a strong and sustainable economic base in support of USF's growth.</p>	<ul style="list-style-type: none"> • The Center continues to receive extramural support from community sponsors (Hillsborough County) to support technology entrepreneurship in Tampa Bay • The Center, in partnership with the College's Development Office, secured a \$1,000,000 gift to support the entrepreneurship activities of the College. • The Center's current students and alumni have begun the creation of a scholarship fund for graduate scholarship in entrepreneurship
<p>5. College community involvement</p> <ol style="list-style-type: none"> a. Contributions from departments, faculty and students that have helped to achieve our goals. <ol style="list-style-type: none"> i. Hosting any type of panel discussions b. Estimated number of guest speakers in our classes c. Estimated number of presentations faculty have made outside of the classroom (both research and non-academic) d. Community activities by faculty <ol style="list-style-type: none"> i. Number of faculty serving on outside advisory boards ii. Number of companies that have partnered with classes for hands-on learning projects e. Student organizations <ol style="list-style-type: none"> i. Honors received 	<ul style="list-style-type: none"> • The Center's faculty have chaired, hosted and participated in numerous programs though the year to benefit USF faculty entrepreneurs, community entrepreneurs and students, including 10 weekly workshops on entrepreneurship business survival skills. Center's faculty were provided over 40 opportunities for outside research and non-research presentations. • New program launched engaging entrepreneurship graduate students with the USF Office of Research to assist University researchers to identify and file SBIR and STTR applications. • The Center provided opportunities for over 40 business professionals to speak and engage in classroom case studies with graduate courses throughout the year. • Over 100 graduate students assisted University research investigators with the strategic evaluation of their new inventions patented at USF • Over 70 graduate entrepreneurship assisted community businesses with development of development of strategic plans for corporate growth and expansion • Graduate entrepreneurship students

	<p>provided over 4000 man hours of pro-bono assistance to individuals seeking assistance with creating, launching and growing new enterprises and commercializing new innovative products and services.</p> <ul style="list-style-type: none">• Faculty of the Center currently serve in national leadership positions within the United States Association for Small Business and Entrepreneurship (USASBE) serving as members of the Board of Directors, Vice President for Development a, Senior Executive Vice President and Program Director for Technology and Life Sciences Entrepreneurship• All Center faculty currently serve of the Boards of Directors, Business Advisory Boards and Scientific Advisory Boards of over 20 Tampa Bay businesses and not-for profit organizations• Over 40 companies engaged in partnerships with entrepreneurship graduate student teams in experiential learning activities, internships and student practicums
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What are three program goals to be accomplished in the next 5 years?

1. Strengthen and expand our programs in Health Sciences and Healthcare
2. Strengthen and expand our international programs in Latin America and the Caribbean
3. Develop and deploy our recently approved "Off the Books" graduate programs to be delivered at the USF Center for Advanced Medical Learning and Simulation

Anything else you'd like to share?

Community Engagement Activities for USF Center for Entrepreneurship and its Educational Programs

- USF supports intrapreneuring and the revitalization of existing businesses through student engagement with community businesses and their leadership teams. Graduate students (40 to 50 per year) engage through entrepreneurship courses in strategy to work as interdisciplinary consulting teams to assist businesses to evaluate their existing business strategies and to develop approaches to improve their competitive strengths and develop new core competencies. The analyses performed by the student teams provide possible roadmaps for corporate improvement and revitalization of ongoing business enterprises.
- Current students and alumni of the USF entrepreneurship programs engage in active entrepreneurial stewardship both while completing their courses of study through active participation in internships, practicums and through memberships in the USF Bull's Entrepreneurial Network Club, USF Bulls Think Tank, the USF Women in Entrepreneurship and the USF chapter of Collegiate Entrepreneurs Organization (USF BullsCEO) and SIFE and upon graduation they participate in USF's global entrepreneurship alumni organization and network. Our graduate entrepreneurship students provide mentoring, guidance, project direction and coaching for undergraduate student SIFE members. The result of this collaboration has lead USF's SIFE to become the top SIFE Team in the Southeastern United States in the 2010 student competition. These organizations provide entrepreneurial student leadership development, professional guest speaker series for students, social networking for students with entrepreneurial community leaders and a "think tank" program (the USF Bulls Think Tank) for student peer-to-peer evaluation of new student based business venture opportunities. Our USF Women in Entrepreneurship organization provides a format for open exchange of ideas among successful women entrepreneurs and students wishing to become entrepreneurs. The organization provides speaker series, panel discussions, mentoring and open exchanges opportunities for students and women professionals. It also provides a strong opportunity for community/student engagement and the possibility of philanthropic support for USF's entrepreneurship programs. Upon graduation our alumni participate actively through the world-wide USF Entrepreneurship Alumni Organization. This organization which is chartered as a formal alumni organization within the USF Alumni Foundation provides international networking opportunities for current students and alumni and engages in active stewardship through mentoring, hosting internships, guest lecturing and providing scholarships to current students.
- USF's Center for Entrepreneurship provides a strong network of Professional Entrepreneurship Mentors for its current students and alumni through its Advisory Board, the Tampa Bay CEO Council, StarTec Accelerator, the USF Small Business Development Center, the Tampa Bay Technology Forum and other business and professional affinity groups. USF's Entrepreneurs-in Residence program provides direct one-on-one assistance and guidance for students interested in launching their new

enterprises USF's entrepreneurship programs support university and private sector technology transfer, new innovation commercialization and faculty venturing through joint efforts as a partner in USF CONNECT. These activities are provided on a year-round basis to USF spinout companies located in the USF Incubators. Support programs include 1) entrepreneurship student opportunities for engagement with internships, graduate student team consultancies, 2) entrepreneurship faculty mentoring for USF research faculty and entrepreneurs, 3) service on new venture boards of advisors and 4) service on venture-backed boards of directors. Entrepreneurship faculty, who themselves are successful serial entrepreneurs, actively encourage and engage in peer-to-peer learning exercises with new faculty entrepreneurs. These activities support and nurture our entrepreneurial culture and ecosystem associated with USF, the H. Lee Moffitt Cancer Center, the Byrd Alzheimer's Research Center and our regional hospitals. Over 200 graduate entrepreneurship students participate annually in these activities.

- USF hosts the annual Fintech student business plan competition in May of each year. It is open to over 45,000 graduate and undergraduate students from the USF campuses of Tampa, Lakeland, St. Petersburg and Sarasota. This business plan competition provides comprehensive packages of prizes and professional services to the top three teams and mentoring and professional guidance to all teams which apply to compete in the business plan competition. These packages include cash, office space and infrastructure support in our local StarTec Business Accelerator, and professional legal, accounting, human resources and communications services. This program enabled the launch in Spring Term 2009 of 21 new incorporated businesses started by teams of USF graduate and undergraduate students.

USF hosts the annual Technology Innovation Challenge held in April of each year is open to graduate students to compete as interdisciplinary teams to design, develop and produce innovation new product designs to solve problems relevant to elderly and physically challenged individuals. These new products include innovative new ideas to assist physically challenged individuals and elderly individuals with managing tasks to accomplish everyday requirement of opening tamper-proof containers and medicinal bottles using only one hand. An additional constraint is placed that the new products must be able to be produced in a cost effective manner using considerations of sustainability in their production methods. Student teams developing successful new products are encouraged and supported by USF to seek patent protection and assisted in finding partners to commercialize their new products.

Comments from Email that accompanied submission:
1/27/12:

Greetings. I have attached the updated and completed forms which you forwarded earlier. This set of information is as accurate as we can generate at the present time. In preparation for the upcoming meeting, I did review the original approval package for the Master's Degree program and can confirm that for every year, since approval, we have exceeded our projected enrollments with less faculty and staff as originally approved.

This has been accomplished through the development and nurturing of strong partnerships between the Center for Entrepreneurship and the Colleges of Business, Engineering, Medicine and the Global School of Sustainability. We have functioned with extremely limited resources and built a program of national and international excellence in the face of overwhelming odds and lack of permanent institutional financial support for the staff of our graduate entrepreneurship educational programs.

These success metrics are best exemplified by our student enrollments, graduate student credit hours generated, number of graduates, length of time to graduation and our national rankings by Princeton Review year after year as one of the pre-eminent graduate entrepreneurship programs in the nation. As the director of our entrepreneurship programs here at USF I am extremely proud of the hard work, diligence and commitment to student success demonstrated on a daily basis by our staff and teaching faculty.

As we move forward in the coming years we will seek to maintain the high bar of academic excellence for our current programs while expanding our graduate educational efforts in Life Sciences, Healthcare and International Entrepreneurship. In particular, with the approval by the USF Board of Trustees and the State of Florida Board of Governors, this past year, we look forward to beginning our "off the books" graduate entrepreneurship programs as a partner with USF Health's Center for Advanced Medical Learning and Simulation in the Fall of 2012 to deliver innovative, new educational programs for healthcare professionals.

If after review of the attached report you may have any questions please feel free to contact me at any time.

Best regards,
Michael



Richard Austin, Ph.D.
Math Education (6-12) M.A.T. Program
College of Education
EDU162

The Graduate Council wants to thank you and your faculty for the thoughtful third year program review report. We appreciate your willingness to present your findings to the Council allowing clarification and input into your findings.

Your review was very thorough and presented a representative picture of your concerns and issues. From the data submitted, it appears that Mathematic Education is struggling with both student enrollment and faculty resources (advisor and faculty members). Students who might seek admission are lacking in an adequate Math background; School Boards no longer are rewarding teachers with a master's degree; many baccalaureate graduates pursue certificates instead of a master's degree. NOYCE Grant money is available for two more years, but funding is not being used because qualified students are not applying. As you recall several suggestions were shared with you how you might boost both faculty and student participation.

As a result of discussion of the entire Graduate Council, we are requesting that Math Education submit a supplemental report next March describing the results of the programs efforts to increase enrollment and sustainability.

Sincerely,

A handwritten signature in black ink that reads "Ruth Bahr". The signature is fluid and cursive.

Ruth Bahr, Ph.D.
Graduate Council Vice-Chair
2011-2012

cc: Harold Keller, Ph.D., Interim Dean and Associate Dean, College of Education
Stephen Thornton, Ph.D., Chair, Secondary Education

Third-Year Graduate Degree Program Review

Program: **Mathematics Education 6-12 (MAT)**
 Year Approved: **2005**

The Graduate School and the USF Tampa Graduate Council would like to ask you to complete this brief survey of your Graduate Program. This one-time survey, given to all recently approved graduate programs, will provide information about the program's standing and offers opportunities to showcase program's accomplishments in the first few years. Currently, no other mechanism is available to collect this type of information. The Graduate Council will prepare a brief report based on the survey, which will be circulated back to you and kept on file in the Graduate School. Thank you in advance for your assistance with this important project!

PART I: Program Metrics (pre-populated by Graduate School)
 (Optional comments regarding these numbers may be separately attached.)

Enrollment Statistics	Current Year (2011/2012)*	2010/2011	2009/2010	2008/2009
Applied (info center)	5	4	17	0
Admitted (info center)	3	1	9	0
Enrolled (info center)	3	0	5	0
Degrees Awarded (info center)	*	0	1	1
Time to Degree (if applicable) (info center mean)	*	-	3	1.42
Total program enrollment (SIF)	5	8	10	7
% students registered full time (SIF)	4	2	4	2
Graduate SCH (SIF) * not available in infocenter by program	57	43	64	41
Funded SCH Generated by Program	NOT AVAILABLE BY PROGRAM	----	----	----
Number of graduate faculty** (PROFESSOR, ASSOCIATE PROFESSOR, ASSISTANT PROFESSOR)	3	5	5	4
Student: Faculty Ratio (students per faculty)***				

*The current year 2011/2012 is not complete and spring data is not available in Infocenter. Academic year is summer, fall, spring.

**Information not available on Infocenter. Please provide a total number and then please attach a list of names, level (Full, Assoc., etc.), and research areas of these faculty

***Information not available on Infocenter. Please provide.

Faculty: (rank) Research Interests and notes

alphabetical order (covering all of the years of interest)

Austin, Richard A. (Associate Prof.)

Interests include the use of childrens' literature of initiate mathematics lessons, particularly at the middle grades level. The other area is the use of technology in teaching mathematics, particularly using graphing calculators and geometric exploration software. (current MAT advisor)

Gerretson, Helen (assistant, left in spring 2011 – was the advisor for MAT students)

Kersaint, Gladis (Prof) (left in Fall 2011 to become Interim Associate Dean for Research)

She is PI on the NOYCE grant that is supporting 3 current students in the program. Her interests include factors that the influence mathematics teacher education, teacher practices, access and opportunities for at-risk children, and technology for learning and teaching mathematics.

Thompson, Denisse R. (Prof) Her research interests include:

- Curriculum development and evaluation in mathematics education
- Use of literature in teaching mathematics
- Cultural perspectives in teaching mathematics, specifically books and videos
- Use of literacy in teaching mathematics
- Assessment in mathematics

Vomvoridi-Ivanovich, Eugenia (assistant prof)

Her research interests focus on mproving and advancing mathematics education for students historically underrepresented and undereducated in the field of mathematics and whose linguistic and cultural backgrounds have not traditionally been recognized as being resources for academic learning.

Part II: Annual Student Success Metrics (populated by the Program)
 (Optional comments regarding these numbers may be separately attached.)

	Current Year (2011/2012)	2010/2011	2009/2010	2008/2009
Professional Presentations by Students				
Student Publications/Creative Works				
Student Funding and Scholarships (including internal awards)	3 NOYCE			
Other				

Part III: Program Narrative

In a few sentences:

1. Note any programmatic changes since original approval or last review and why the changes were made (i.e. changes to degree requirements, courses, qualifying exams, theses etc).

None since 2007

2. Discuss diversity in your program and you are actively involved in promoting this initiative.

Diversity in student population can be looked at in two ways. First there are 2 African-American students, 1 Hispanic student and 2 Caucasian students currently in the program. These five also break down to 3 female students and 2 male students.

3. Discuss student "creative works" (publications per student, etc.) captured in Part II above.

There is nothing from the "creative works" area to report.

4. Discuss placement of your recent graduates (e.g., types of employment, admittance to other degree programs).

All of the graduates that I know about are teaching mathematics in schools in the greater Tampa area. Even those who started the program and dropped are teaching.

5. Identify qualities/metrics of applicants who prove to be successful in your program (e.g., REU experience, experience specific to your discipline, GRE performance).

The successful graduates all have strong mathematics undergraduate degrees. However, some students with strong mathematics degrees have started and dropped the program.

Comment succinctly on the following (e.g., 200 words max).

Based on the data in Part I, discuss current enrollment trends, graduation rates, time to graduation, and retention. Provide details on how the program is addressing each of these areas and will correct any deficiencies (i.e. low number of applicants, loss of students etc.)

Enrollment in the program continues to be small. Many applicants do not have the mathematics background to be admitted. There just do not seem to be many undergraduates from the Mathematics Department who decide to become teachers in their senior year or shortly after graduation. The NOYCE Grant is supporting 3 current students. Much of the advertising is connected with the NOYCE funding, with very little to show. That school boards have stopped paying "extra" for having a master's degree and will hire mathematics graduates without our program is beyond our control, but definitely an issue.

Identify three programs that are considered to be peers.

We do not know of other institutions that we consider peers. I have received feedback that other institutions which have received NOYCE grant funds are also experiencing a lack of qualified applicants in mathematics education.

Describe how the Program aligns with the strategic goals of USF.

Alignment with strategic goals of USF: This is definitely a STEM initiative. Further the program helps to make the community stronger by providing highly qualified mathematics teachers for the high schools in the area.

What are three program goals to be accomplished in the next 5 years?

1. Continue contacts with school systems to endorse the program for preparation of alternative certified teachers.
2. Continue grant funding opportunities to support students financially during their program of study.
3. Recruit a greater number of qualified students

Anything else you'd like to share?

I took over as the advisor for this program in the Fall of 2011 when the former advisor left USF. This program has had a difficult time attracting students with an undergraduate degree in mathematics who would like to both get a master's degree and become certified teachers in Florida. Even with the funding now available, we were not able to attract as many students as there was funding to support. There is only one qualified applicant for the next year, so far.

Program faculty members are acutely aware that this may not be a sustainable program on its own.