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OFFICE OF THE PROVOST AND VICE PRESIDENT

April 30, 2009

Dr. Linda Noble
Assistant Vice Chancellor for Faculty Affairs
Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334-1450

Dear Dr. Noble,

It is with great pleasure that I nominate Dr. Laura B. Regassa, Associate Professor of Biology, for the FY 2010 Regents' Scholarship of Teaching and Learning Award. In her SoTL (Scholarship of Teaching and Learning) narrative, Laura defines student learning as the "singular objective" of teaching and highlights three SoTL projects that demonstrate her efforts to infuse molecular biology content throughout the biology curriculum. These efforts include instruction in an introductory biology course, an upper-level undergraduate course, and in the graduate curriculum.

In the upper-level undergraduate course, Laura used project-based learning to shift pedagogy from a traditional methods approach to a process where students are guided to discover the knowledge. The expectation was that students would retain the content better, gain confidence and abilities in working in a laboratory setting, and be more effective at analyzing and synthesizing content. Using a variety of assessment techniques, it was demonstrated that project-based learning resulted in increased student learning, greater student confidence, and stronger critical thinking and analytical skills. This new approach is now used each semester in the advanced molecular biology course.

The graduate SoTL project was a little different. In this project, Molecular Biology Initiative (MBI) fellows participated in enrichment activities and seminars in addition to their graduate biology coursework. Five outcomes were sought, including improved retention, enhanced research programs, stronger K-12 partnerships as well as instilling strong communication, leadership, and pedagogy skills in graduates and providing in-service teachers with content knowledge, confidence, and the ability to teach using an active-learning model. Once again, students demonstrated significant learning improvement as a result. The findings have been published in three abstracts and have resulted in three invited talks. Laura has also conducted three in-service teacher workshops on the project and is currently preparing a manuscript for *The Science Teacher*.

The introductory undergraduate course focused on building the foundation for biological literacy. Using guided inquiry-based learning, students constructed their own biological knowledge and skills. Laura summarizes in her narrative the substantial research done showing

the benefits of guided inquiry-based learning and preliminary results of her work support these findings. Laura has shared her preliminary findings in a local talk and one international talk, but wider dissemination is awaiting the results of the spring 2009 assessments.

The above projects demonstrate Dr. Regassa's meticulous scholarly approach and commitment to improving student learning. As her letters of support articulate, she has impacted teaching on multiple levels. She is passionate about sharing her findings, participating actively in professional societies such as the Southeastern Branch of the American Society of Microbiology where she currently serves as President-elect. Indeed her efforts have been widely acknowledged. She is the recipient of the Ivan Roth Award (2006) from the Southeastern Branch of the American Society of Microbiology and was named an American Society for Microbiology SoTL Scholar-in-Residence the same year. In 2008, she was nominated for an Association of Southeastern Biologists Meritorious Teaching Award. Laura has also received the Georgia Southern University Award for Excellence in Contributions to Instruction (2006) and a College of Science and Technology Teaching Award (2008).

Dr. Laura B. Regassa demonstrates through practice the successful implementation of the scholarship of teaching and learning. Georgia Southern University is very fortunate to have her among our faculty, and I am pleased to nominate her for the FY 2010 Regent's Scholarship of Teaching and Learning Award.

Sincerely,

Linda Bleicken

Linda M. Bleicken
Provost and Vice President for Academic Affairs

SoTL Narrative: Laura B. Regassa

Teaching Philosophy

My teaching and learning philosophy arises from the concept of mutual respect between the instructor and the student. Both have a role to play in achieving a singular objective: student learning. As an instructor and faculty facilitator, I recognize the varying abilities and learning styles of my students and attempt to provide them with ample opportunities to succeed in my courses. In return, I expect students to take advantage of the learning environment and to engage in the process of learning. By the end of each semester I am amazed at how much my students have grown and I am always surprised by what I have learned. By learning as I teach, I know that I become a better teacher.

I came to the Department of Biology with expertise in molecular microbiology, and much of my SoTL work has focused on infusing molecular biology content into the curriculum. Before I could get down to the business of improving student learning in this area, the department needed the appropriate teaching facilities and equipment. Infrastructure improvements were completed in concert with institutional administrators, and often involved securing intramural and extramural funding. With adequate facilities in place, I focused on three main projects with the intent of moving molecular biology content down through the curriculum. I started with an upper-level undergraduate course and then undertook plans to enhance the graduate curriculum, before initiating work in the introductory biology laboratory course. Each of these projects is briefly outlined below.

SoTL Projects

I. Undergraduate Molecular Biology Literacy: From Knowledge to Application with Project-Based Learning (NSF DUE-0407482)

Background

Traditionally, molecular biology tools had been taught in a methods course where students learned individual techniques, but often had difficulty moving beyond rudimentary understanding. The goal of this project was to provide effective molecular biology education using an integrated, project-based approach. Project-based learning provided a context for the molecular biology concepts and techniques (Markham et al. 2003). It is an appropriate approach to systematically engage students in their own learning; students learn through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks. This approach shifts the pedagogy from methods to guided discovery (Chin and Chia 2004; Mayer 2004); and is consistent with Project Kaleidoscope (PKAL) and National Research Council (NRC) standards that focus on creating an environment that promotes understanding of concepts, problem-solving skills and hands-on activities (NRC 1996, 1999; PKAL 2002, 2006).

We hypothesized that the pedagogical approach would help students retain knowledge, gain confidence and abilities in techniques needed to work in a laboratory, and develop analysis and synthesis skills. The course was taught in a studio lab setting with no formal lectures separate from the laboratory component (2 3-hr classes/week); the instructor provided background and discussion opportunities as needed. The course began with a 5-period introductory section that covered basic laboratory skills, and then students completed a long-term cloning project that encompassed a large number of molecular biology techniques. The final 4-5 class periods were devoted to completion of a mini-grant proposal, which allowed students to take the knowledge that they had gained and apply it to a complex, novel scientific question (Regassa and Morrison-Shetlar, 2007).

Learning Outcomes

Student learning was assessed with a mixed methods approach involving both quantitative and qualitative components (Creswell 2002). Many of the research questions were analyzed using limited statistics, while the qualitative approach allowed for research areas to emerge (Krathwohl 1998). A summary of learning outcomes and exemplary data is presented below; all assessment tools, scoring rubrics, and data were recently reported (Regassa and Morrison-Shetlar 2009).

Project-based learning increased the students' knowledge base, confidence levels, critical thinking and analytical skills. The instructor and students were able to learn by formative feedback mechanisms that enhanced the course and increased student learning and retention. By the end of the course, indirect and direct measures indicated that the majority of students gained the confidence and knowledge needed to problem-solve independently using molecular biology approaches. Focus group data (not shown) was consistent with student attitudinal surveys that showed a high level of confidence for techniques that students had done during the course (Table 1). Content knowledge also increased as measured by pre- and post-knowledge assessment (data not shown) and writing samples (Table 2). Overall, the project-based curriculum succeeded in helping these students acquire the knowledge and skills that are necessary for independent scientific inquiry. The curriculum is used each semester in the advanced molecular biology course, with many of the students from the course going on to productively participate in faculty research programs.

Table 1. Self-reported student confidence levels with respect to laboratory skills/techniques.[1,2,3]

Semester	Pre	Post
Spring 2005	2.84 ± 0.92	4.54 ± 0.32
Fall 2005	2.38 ± 1.18	4.52 ± 0.35
Spring 2006	2.41 ± 1.10	4.51 ± 0.29
Spring 2007	2.50 ± 1.06	4.39 ± 0.47

[1]All averages are presented ± the standard deviation.
[2]A significant increase in confidence was seen for all semesters as determined by the Student t-test ($p < 0.001$).
[3] Student responses were on a Likert scale of 1 (no knowledge/ability) to 5 (proficient).

Table 2. Evaluation of student writing samples from pre- and post-knowledge assessment questions. [1,2]

Semester	Pre	Post
Spring 2005	2.30 ± 1.27	13.74 ± 0.77
Fall 2005	0.23 ± 0.83	13.92 ± 1.06
Spring 2006	0.71 ± 1.68	12.48 ± 1.13
Spring 2007	1.14 ± 3.01	12.04 ± 2.39

[1]All averages are presented ± the standard deviation.
[2]A significant increase in pre/post scores was seen for all semesters as determined by the Student t-test ($p < 0.001$).

II. The Molecular Biology Initiative: Enhancing Graduate Student Learning (NSF EHR-0314953 [subaward]; NSF GK-12 0841146)

Background

The main goal of this project is to enhance graduate (M.S.) education in the Department of Biology. The Molecular Biology Initiative (MBI) Program was designed to oversee recruitment, program admission, initial and long-term advising/mentoring, and enrichment activities for graduate students with an emphasis on molecular biology based research. Dr. Regassa is the Director of the MBI Program, which was recently funded by NSF for 5 years (4/1/09), and the lead instructor for the MBI seminar course and one of the MBI-required molecular biology courses. During their first year in graduate school, MBI fellows will be supported as teaching assistants while they participate in MBI program activities (e.g. enrichment activities, seminar [pedagogy, speaking skills, time-management, etc.], molecular biology coursework). The MBI fellows will be supported on NSF fellowships during their second year while they continue enrichment activities, including a long-term outreach activity in the high schools. This outreach component was tested in a 2-year pilot program (see "Program Evaluation" below). The high level of financial and programmatic support will ensure graduate student success, and will allow students to complete their degrees with complementary knowledge in pedagogy and GK-12 educational issues.

Program Evaluation

The intended outcomes of the MBI program are to: (1) strengthen the biology graduate program by recruiting and retaining high-quality, diverse student cohorts; (2) graduate outstanding M.S. Biology students (emphasis in molecular biology) with strong communication, leadership, and pedagogy skills; and an awareness of and desire to participate in issues facing K-12 education; (3) enhance molecular-based research programs by pairing mentors with qualified, motivated and funded graduate students and by introducing new molecular biology graduate courses; (4) strengthen and expand partnerships between GSU and area secondary schools and teachers; and (5) provide in-service teachers with content knowledge, confidence and the resources needed to introduce active-learning, GPS-aligned molecular biology modules. All outcomes will be thoroughly evaluated in conjunction with an outside assessor, and specific learning outcomes from individual courses will be incorporated into the overall evaluation design.

Evaluation of the outreach component and in-service teacher workshops during the pilot program generated formative assessment data. The two-year pilot program involved 9 teachers annually in 4 high schools (3 school districts) and impacted over 750 students. Basic molecular biology activities were adapted to address several areas of the Georgia Performance Standards in biology and chemistry (e.g. Arnsdorff et al. 2008), with formative assessment data collected throughout the program to examine teacher and student satisfaction/learning (Regassa 2008, Regassa and Morrison-Shetlar 2008). The overall success of the program with respect to the teachers was measured using several parameters: (i) an increase in confidence in numerous laboratory skills from an average of 2.5 to 4.5 on a scale of 1-5 (1=no knowledge, 5=understand and able to perform); (ii) an increase in content knowledge from an average of 30% to 80% for eight concepts assessed using open-ended and multiple choice questions; and (iii) overall participant satisfaction with the workshop in achieving self-identified teacher goals (4.5 out of 5). Student

learning and satisfaction were also assessed; a total of 438 students participated in the assessment (56% freshman, 31% sophomores, 12% juniors, 1% seniors). Pre-existing academic achievement among the students varied (technical preparatory, honors and advanced placement classes), but there was no significant difference in their baseline knowledge. Students demonstrated significant learning for all eight concepts as determined by open ended and multiple choice questions (average aggregate increases from 25% to 74%). A survey tool was administered to students to gauge their satisfaction with the module; 84% reported a high level of satisfaction, 15% medium and 1% low. To date, the results from this study have been disseminated in three published abstracts and three invited talks (see CV). In addition, three in-service teacher workshops (see CV) were offered as part of the outreach program and a manuscript is currently in preparation for *The Science Teacher*.

III. Biology Inquiry: Knowledge & Process (NSF DUE 0837172 declined 2009; resubmission planned)

Background

It is imperative that we provide our students with a learning environment that allows them to build the knowledge and skills necessary for biological literacy. The specific goal of this project is to provide effective undergraduate biology education in a gateway course using inquiry based learning. The introductory biology laboratory course for majors at Georgia Southern University is the focus of this study; it services approximately 300 students annually. The current curriculum introduces discreet skills using prescribed activities. As part of larger curricular changes within the department, the learning outcomes for this course were revisited and a new curriculum tested. We hypothesized that guided inquiry could be used to help beginning undergraduate students construct a biological knowledge and skill base, while maintaining an appreciation for the breadth of biology. The new curriculum focuses on knowledge building and the scientific process by relying upon four long-term guided inquiry projects. Each project is centered on a different model organism to help students appreciate the breadth of biology as they learn basic concepts and skills. Three-member student teams investigate a single organism throughout the semester, with two teams per class focusing on the same organism. The group structure fosters peer-peer, cooperative learning within groups and information dissemination across groups.

There is a substantial body of literature that indicates that students need to construct their own knowledge to gain ownership of the concepts and processes of a discipline (e.g. Perry 1970,1990; Clinchy 1990). To help students achieve this goal, the guided inquiry model was chosen (Balaban 2007). This approach shifts the pedagogy from factual content to guided discovery (Chin and Chia 2004; Mayer 2004); and is consistent with Project Kaleidoscope (PKAL) and National Research Council (NRC) standards that focus on creating an environment that promotes understanding of concepts, problem-solving skills and hands-on activities (NRC 1996, 1999, 2003; PKAL 2002, 2006). In addition, an inquiry-based learning classroom fosters student independence and self reliance; this is an important step in empowering students to be life-long learners (AACU 2002, NRC 2000). The group work promotes cooperative learning, which has a long history of documented success in the classroom (reviewed in Nilson 2003) and may be of particular benefit to disadvantaged or minority students (Johnson et al. 1981, Treisman 1986).

Learning Outcomes

Preliminary evaluation of student learning outcomes during the implementation of the new curriculum showed significant learning gains. The knowledge and skills assessed were common to the old and new curricula, but the students in the pilot test sections routinely out performed their peers in the control sections with the established curriculum. For example, student learning of basic concepts was assessed using a pre/posttest format with multiple choice and open-ended questions (Figure 1). Data from a single semester is shown for one pilot section (test data) and aggregate data for 3 sections using the established curriculum taught by 2 different instructors (control data). Although there was some variability among control sections, the data was collapsed to facilitate preliminary analysis. Student responses to an open ended question on how to improve the class also supported the change in pedagogy. Comments for control sections that focused on factual content rather than process dealt overwhelmingly with the amount of information that students were required to know, how the information was delivered, and the overly critical grading (70%). In contrast, curriculum-specific comments from students in test sections focused (>95%) on ways to improve their learning (e.g. more practice problems, more technology exposure). Data from additional semesters and instructors is currently being processed, and will be used to inform curricular decisions before a model is adopted for full implementation. A key to full implementation will be funding for faculty professional development (included in NSF application), as 5-7 instructors are involved in this course annually. Preliminary results from this project have been presented in one local and one international talk (Regassa and Morrison-Shetlar 2009). Wider dissemination awaits full analysis of the learning assessment data, including results from the Spring 2009 semester.

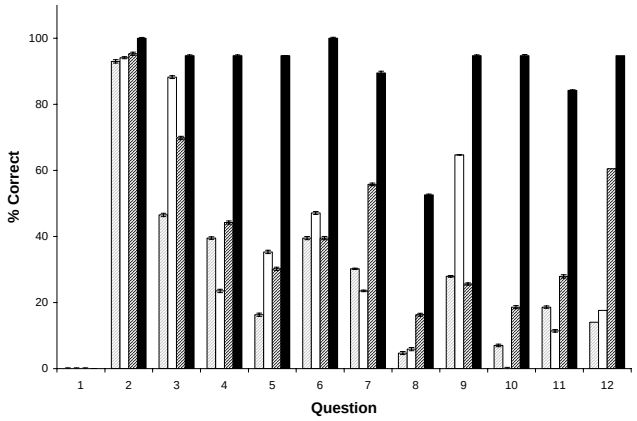

Figure 1. Student learning assessment using a concept pre/posttest. The striped bars show aggregate data from pre (grey) and posttests (black) in sections utilizing the old curriculum. Aggregate data from the section with the new curriculum is shown for the pre (solid white) and posttests (solid black). Questions 1 and 2 were negative and positive controls, respectively. The error bars indicate standard deviation.

Summary

Dr. Regassa has an active SoTL research program, with a focus on the infusion of molecular biology into the curriculum via active, inquiry-based learning. To support her SoTL objectives, she successfully secured approximately $2.5M in extramural educational grant funding over the past 5 years. In addition, Dr. Regassa submitted numerous intramural grant applications (~$85,000 funded) and over $4.5M in unfunded extramural applications. She has actively disseminated her SoTL research via invited talks, meeting presentations and peer-reviewed publications; and taken a leadership role in promoting scholarly teaching and SoTL research.

References to SoTL Narrative

Arnsdorff, Y., J. Bragdon and L.B. Regassa. 2008. Designing and implementing GPS-aligned molecular biology activities in resource-limited high schools. 6th Science in Savannah Symposium, p. 6.

Association of American Colleges and Universities. 2002. Greater expectations: A new vision for learning as a nation goes to college (http://greaterexpectations.org/).

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References to SoTL Narrative (cont.)

Project Kaleidoscope. 2002. Recommendations for action in support of undergraduate science, technology, engineering and mathematics: report on reports. [Online.] Project Kaleidoscope, http://www.pkal.org/documents/ReportOnReports.cfm

Regassa, L.B. 2008. The Molecular Biology Initiative (faculty and graduate students): impacting biology education in rural high schools. Abstr. of Ann. Am. Soc. Microbiol., Abs. No. W-019.

Regassa, L.B. and A.I. Morrison-Shetlar. 2008. A molecular biology studio course at the crossroads: undergraduate teaching, research and service. ISSOTL, Abs. No. B29.

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Regassa, L.B., and A.I. Morrison-Shetlar. 2007. Designing and implementing a hands-on, inquiry-based molecular biology course. Journal of College Science Teaching, 36: 36-41.

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SoTL Curriculum Vitae Summary

Dr. Laura B. Regassa

Education

1988-1993 Ph.D. in Bacteriology, University of Wisconsin-Madison
1981-1985 B.A. in Spanish, Marquette University, Milwaukee, Wisconsin

Employment Experience

1999-present Assistant (1999-2005)/Associate (2005-present) Professor, Department of Biology, Georgia Southern University, Statesboro, Georgia
1993-1999 Postdoctoral Research Associate/Fellow, Department of Medical Microbiology & Immunology (1993-1995) and Department of Pathobiological Sciences (1995-1999), University of Wisconsin-Madison.

Honors and Awards (past 3 years)

2009 Invited participant, *Transforming Undergraduate Education in Biology: Mobilizing the Community for Change*, Washington, D.C. (AAAS/NSF)
2009 Nominated for College of Science & Technology Service Award
2009-2011 Chair-elect/Chair for Division G of the American Society for Microbiology
2009 National Bioinformatics Institute – Selected Participant, Washington, D.C.
2008 Nominated for University Service Award, Georgia Southern University
2008 College of Science and Technology SoTL Award, Georgia Southern University
2008 Nominated for Assoc. of Southeastern Biologists Meritorious Teaching Award
2008-2010 President-elect/President for the Southeastern Branch of the American Society for Microbiology (AL, FL & GA)
2007 Educational leave: awarded competitive faculty sabbatical, 8/07-12/07.
2007 Featured Faculty, Center for Excellence in Teaching, Georgia Southern University
2006 Ivan Roth Award, Southeastern Branch of the American Society for Microbiology
2006 University SoTL Award, Georgia Southern University
2006 American Society for Microbiology SoTL Scholar-in-Residence

Invited SoTL Presentations (past 5 years)

Teaching for student learning and faculty survival. August 2008. New Faculty Orientation, Georgia Southern University, Statesboro, GA.

Teaching strategies for ever-expanding class rolls. April 2008. Wells College, Aurora, New York.

Collaborative design yields a highly effective molecular biology initiative in southeast Georgia high schools. February 2008. 6th Science in Savannah Symposium, Savannah, Georgia.

Inquiry-based molecular biology education and student learning. December 2007. Addis Ababa University, Addis Ababa, Ethiopia.

Inquiry-based Learning. September 2007. East Central Georgia PRISM Regional Coordinating Meeting, Panel Discussion, Georgia Southern University, Statesboro, Georgia.

Surviving (and succeeding with) the teacher-scholar-service model. August 2007. New Faculty Orientation, Georgia Southern University, Statesboro, Georgia.

Are They Learning? How Do We Know? Can Technology Help? August 2006. New Faculty Orientation Panel (2 sessions), Georgia Southern University, Statesboro, Georgia.

Molecular Biology Education. March 2006. Focus on Excellence in Teaching, Georgia Southern University, Statesboro, Georgia.

SoTL Curriculum Vitae Summary

An effective, economical approach to hands-on molecular microbiology for undergraduate students. October 2005. Southeastern Branch American Society for Microbiology, Tampa, Florida.

Important teaching lessons: guppies, grandmas and welding. August 2005. New Faculty Orientation Workshop, Georgia Southern University, Statesboro, Georgia.

Molecular biology curriculum development in an undergraduate setting: practical implications. May 2005. Georgia State Leadership Team for NSF-PRISM, Statesboro, Georgia.

Development of an undergraduate molecular biology curriculum: past, present and future. April 2005. Regional Coordinating Council Meeting for NSF-PRISM, Statesboro, Georgia.

Project-based learning in a molecular biology classroom: What does it really take to make it work? April 2005. COST Research in STEM Education Seminar Series, Georgia Southern University.

Molecular biology research and teaching: From pigs to flies to curriculum development. April 2004. American Association of University Women, Regional Meeting, Savannah, GA.

Workshops Presented at Georgia Southern University (past 3 years)

Independent sustainability of molecular biology curriculum reform initiatives in the high school curriculum. East Central Georgia PRISM Workshop, July 2007.

Initiating hands-on, inquiry-based molecular biology activities in the high school classroom, East Central Georgia PRISM Workshop, July 2007.

Enhancing Access to Molecular Biology with a University/High School Outreach Program. East Central Georgia PRISM Workshop, July 2006.

SoTL Publications (past 3 years)

Articles and Manuals (3 of 17 total)

Regassa, L.B. and A.I. Morrison-Shetlar. 2009. Student Learning in a Project-Based Molecular Biology Course. J. College Science Teaching, in press (July issue).

Regassa, L.B. A Personal Reflection on the 2008 ISSOTL Conference. 2009. International Journal for the Scholarship of Teaching and Learning (invited essay). 3(1): 1-3.

Regassa, L.B and A.I. Morrison-Shetlar. 2007. Designing and implementing a hands-on, inquiry-based molecular biology course. J. College Science Teaching 36: 36-41.

Abstracts: presented as talks or posters (9 of 48 total)

Regassa, L.B. and A.I. Morrison-Shetlar. 2008. A molecular biology studio course at the crossroads: undergraduate teaching, research and service. ISSOTL, Abs. No. B29.

Regassa, L.B. and A.I. Morrison-Shetlar. 2008. An effective, inquiry-based molecular biology studio class on a modest budget. Abstr. of Ann. Am. Soc. Microbiol. Conf. Undergrad. Educators., Abs. No. 22-A.

Regassa, L.B. 2008. The Molecular Biology Initiative (faculty and graduate students): impacting biology education in rural high schools. Abstr. of Ann. Am. Soc. Microbiol., Abs. No. W-019.

Arnsdorff, Y., J. Bragdon and L.B. Regassa. 2008. Designing and implementing GPS-aligned molecular biology activities in resource-limited high schools. 6th Science in Savannah Symposium, p. 6.

Regassa, L.B. and A.I. Morrison-Shetlar. 2007. A project-based molecular biology curriculum: Assessment of student learning. Abstr. of Ann. Am. Soc. Microbiol., Abs. No. W-008.

Regassa, L.B. and A.I. Morrison-Shetlar. 2007. Undergraduate Molecular Biology: An Inquiry-based Curriculum and Learning Assessment. The SoTL Commons, Abs. No. P6.

SoTL Curriculum Vitae Summary

Regassa, L.B. and A.I. Morrison-Shetlar. 2006. Assessment of Learning in a Project-Based Molecular Biology Curriculum. Abstr. of Ann. Am. Soc. Microbiol., Abs. No W-002.

Regassa, L.B. and A.I. Morrison-Shetlar. 2006. Assessment of Learning in a Project-Based Molecular Biology Curriculum. ASM Conf. Undergrad. Educ., Abs. No 17-B.

Regassa, L.B. and A.I. Morrison-Shetlar. 2006. Implementation of an inquiry-based molecular biology curriculum and assessment of learning. ISSOTL Conference, Abs. No. 103.

Extramural Grants with SoTL Component (past 3 years; PI: Regassa)

Awarded

Molecular Biology Initiative for Rural Southeast Georgia, NSF Graduate Teaching Fellows in K-12 Education, 4/09-3/14, $2.3 M.

Bringing SoTL to the Southeastern ASM Conference, National American Society for Microbiology, 4/09-12/09, $1200.

Enhancing Access to Molecular Biology with a University/High School Outreach Program. East Central Georgia Partnership for Reform in Science and Mathematics (NSF EHR-MSP Partner subawards), 5/06-5/08, $61,500.

Molecular Phylogenetic Analysis and Biogeography of Spiroplasmas. NSF Systematics and Biodiversity Inventory Programs, 3/05-2/09, $110,971.

Undergraduate Molecular Biology Literacy: From Knowledge to Application with Project-Based Learning, NSF CCLI: Adaptation and Implementation, 8/04-8/07, $114,848 (with match)

Pending

A short course in Ethiopia: Molecular Applications in Biology Research, American Society for Microbiology International Professorship Program, 7/09-12/09, $11,000.

Biology Inquiry: Knowledge & Process. NSF Course Curriculum and Laboratory Improvement, 6/10-5/12, ~$140,000. May 2009 submission planned.

Not Funded (partial list from 3-year period)

Biology Scholars Program – Bridging the gap between freshmen and graduate school, NSF Undergraduate Research Mentoring Preproposal, 6/09-5/13, $1.0M.

Biology Inquiry: Knowledge & Process. NSF CCLI, 6/09-5/11, $148,566.

Undergraduate Molecular Biology Literacy Phase II: From Knowledge to Application with Project-Based Learning, NSF CCLI, 8/06-7/09, $346,118.

Integrative and project-based learning for Freshman Biology majors at Georgia Southern University, East Central Georgia Partnership for Reform in Science and Mathematics (NSF-PRISM subaward), 5/05-10/06, $27,000.

Acquisition of a Genetic Analyzer at Georgia Southern University, NSF Major Research Instrumentation Program, 7/05-6/08, $107,473.

SoTL-related Service (select activities for past 3 years)

SoTL Track Planning Chair, 95th Annual Southeastern Branch ASM Conference

Web-Based Learning Track Planning Committee, International Computer Sci. and Tech. Conference

Editorial Review Board *International Journal for the Scholarship of Teaching and Learning*

Reviewer for *Microbe Library* and McGraw-Hill Publishing

SoTL Conference Service: SoTL Commons Conference (session co-chair); International Society for the Scholarship of Teaching and Learning Conference (session synthesizer, convener)

University of Central Florida

Office of Undergraduate Studies

Dr. Linda Nobel
Assistant Vice Chancellor for Faculty Affairs
University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334-1450

April 21, 2009

Nomination of Dr. Laura Regassa
University System of Georgia Regents' SoTL Award

Dear Committee members,

I am delighted and honored to write in support of Dr. Laura Regassa's nomination for the University System of Georgia Regents' SoTL Award. I have known Dr. Regassa for eight years and have observed her in class; worked with her in the teaching laboratory, and written educational manuals, manuscripts and grants with her. The quality and value of the work that Dr. Regassa performs has made her one of the most well respected faculty members in the biology department, at Georgia Southern University and within the State of Georgia. As a teacher she is passionate about the student learning environment, creating opportunities for students to be engaged, retained and successful in her courses. Her passion is evident as indicated on several levels, one of which is that she is consistently awarded teaching evaluations well above the departmental average. She uses many different types of teaching strategies in her classes but it is in the laboratory that she really excels. Her students are challenged to be professionals from the minute they enter the lab and to learn through making mistakes and trying again. This strategy is not one often used in the lab setting, where 'getting through' the lab is the driving force for the faculty as well as the students. Dr. Regassa has built a strong reputation with the students as being fair, challenging and supportive of student learning. Her facilitative style appeals to the students she teaches, as shown by her teaching evaluations and the comments that students provide in evaluations and in e-mails and letters of thanks. Many of her peers are starting to use the same types of strategies in their classes, a strong commendation as to the effectiveness of her teaching strategies. Dr. Regassa has shown that she maintains the standards of the biology program and facilitates her students' development as professionals in the field.

Of note is the very high number of successful internal and external grants that Dr. Regassa has been awarded all of which focus on hands-on, minds-on learning experiences for students. Most recently she received the prestigious NSF-funded GK-12 program to strengthen the molecular biology training component for her M.S. graduate students (with accompanying programmatic assessment). In addition, Dr. Regassa has designed a high school outreach program designed with NSF PRISM funding (2006-2008) to infuse molecular biology into the curriculum. It included in-service teacher training and in-school implementations and served as the model for the GK-12 program outreach. In all cases, the students under Dr. Regassa's mentorship reach the

appropriate, and high, standards set by Dr. Regassa while enjoying and learning from the experience.

Dr Regassa is also very active in the educational components of many local, regional and national conferences. She regularly takes students to conferences to present their findings and as such is further preparing them to be successful professionals. This type of teaching, which occurs beyond the classroom, will provide us with well prepared students who can communicate effectively in both written and verbal forms.

What sets Dr. Regassa apart is her high level of dissemination in the area of Scholarship of Teaching and Learning. For each grant she has attained, she has published and presented the data that she has collected at local, regional and national conferences. From her Molecular Biology Lab Course project alone, eight posters and two publications resulted. Those that publish in the SoTL arena know that it takes more than just one semester of data collection to gain sufficient results to know if the 'treatment' works. Dr. Regassa has been tireless in assessing the different student learning outcomes for each of the projects on which she works. From this work, of her 17 publications in the last five years, three have been in SoTL, and 13 of 33 presentations have been from her SoTL projects.

While at these conferences, she shares her own ideas in teaching and brings back and implements ideas from others. She shares her ideas with peers within her department and the university at large and is known for her scholarship of teaching and learning.

I believe that Dr. Regassa exemplifies excellence in teaching, supported not only by her student evaluations but by her peers within and outside the university. Her enthusiasm for her discipline, the success of her students, and her ability to maintain high standards and challenge her students to go above and beyond what they believe they can achieve makes her an excellent mentor for students and faculty alike and therefore makes her a very strong candidate for this award.

If you require any additional information about Dr. Regassa, please do not hesitate to contact me via e-mail at aims@mail.ucf.edu or by phone at 407-823-2373.

Yours sincerely,

Alison Morrison-Shetlar

Alison Morrison-Shetlar
Vice Provost and Dean, Undergraduate Studies
Professor of Biology

ASIAN UNIVERSITY
FOR WOMEN

18 April 2009

Dr. Linda Nobel
Assistant Vice Chancellor for Faculty Affairs
University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334-1450

Dear Dr. Nobel,

I am writing to strongly support the recent nomination of Dr. Laura Regassa for the University of Georgia Regents' SoTL Award. Over the past six years, I have interacted with Dr. Regassa as a scientific colleague, co-PI on a major grant, and valued collaborator on effective teaching.

Dr. Regassa's major accomplishments include both scholarship in science and the scholarship of teaching and learning. Her work is known and respected both in the greater science community as well as the science education community. Her many contributions to systematically enhance the learning of students include: (1) Infrastructure needed to implement curricular changes (institutional and NSF funding); (2) Curricular revision in advanced molecular biology course (with mixed method learning assessment described in 2 publications; NSF-funded); (3) Curricular revisions in introductory biology laboratory underway (preliminary learning assessment and 4 semesters of trials completed; NSF submission of revised proposal planned); (4) Programmatic enhancement of the Biology M.S. program via the Molecular Biology Initiative (NSF GK-12 funding); (5) High school outreach program to train in-service teachers and assist in-class implementations (developed with NSF PRISM subaward and now a part of NSF GK-12 program).

Dr. Regassa's ability to envision and implement progressive molecular biology education at every level (K-12, undergraduate, graduate) has had profound impact on science education at Georgia Southern University and the surrounding communities. She has addressed not only science teaching and learning at the University level, but also worked with K-12 teachers to better prepare them and their students. This is a critical contribution, preparing today's youth for a world that is increasingly high-tech and nanotechnology oriented.

Additionally, Dr. Regassa has worked to provide both the facilities and training of undergraduate and graduate students. By shifting the approach from individual students - where a few students have the opportunity to engage in research, to hands-on, research-focused courses - where all students have the opportunity to engage in real research.

ASIAN UNIVERSITY
FOR WOMEN

Finally, Dr. Regassa is a resource to the broader, international science education community. I frequently consult with her on effective molecular science teaching, assessment, and facilities for my work both as Dean of the Asian University for Women and leading curriculum development workshops internationally (including as a Fulbright Scholar). Dr. Regassa's work is scholarly, well-grounded in the literature, and repeatedly tested in the classroom and lab. She is an inspiration to all of us engaged in enhancing student learning.

Please do not hesitate to contact me if I can provide additional information.

Yours sincerely,

Michelle Zjhra

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April 23, 2009

Dr. Linda Nobel
Assistant Vice Chancellor for Faculty Affairs
University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334-1450

Dear Dr. Nobel:

I am pleased to write a letter supporting Dr. Laura Regassa's nomination for the University System of Georgia's Scholarship of Teaching and Learning (SoTL) Award. Dr. Regassa is an impressive example of one person significantly impacting the fields of teaching and learning on multiple levels. She recently was awarded a 5-year, 2.3-million dollar grant from NSF's GK-12 program (Molecular Biology Initiative for Rural Southeast Georgia) to bring molecular biology content and techniques to area high schools. This grant will positively impact the department, university, and state; and, will serve as a national model in Science, Technology, Engineering and Mathematics (STEM) education.

Dr. Regassa's SoTL efforts have allowed our department to establish a robust molecular biology curriculum. In 2002, Dr. Regassa served as the faculty coordinator to assist me with the design and oversight of a major building renovation. This renovation resulted in a "molecular biology wing" complete with faculty offices, research labs and teaching laboratory space. She also assisted with allocating university-provided funds to supply the teaching and research laboratories with equipment and also wrote grants seeking additional equipment funding. The NSF GK-12 grant mentioned above will fund graduate students to bring molecular techniques to area high schools. The grant includes very competitive fellowship stipends which will allow us to recruit some of the best molecular biology graduate student prospects. Dr. Regassa is involved in the revision of our Principles of Biology I Laboratory course and is currently piloting an inquiry-based model. Students in these laboratories are using peer-peer learning with a well-equipped laboratory to learn cellular and molecular concepts and basic techniques. At an upper division level, Dr. Regassa teaches Molecular Biotechniques, using a project-based and inquiry-driven approach. To develop this course, she applied for and received an NSF CCLI grant ($114,848) titled, "Undergraduate Molecular Biology Literacy: From Knowledge to Application with Project-Based Learning." This class always fills and has been so successful we are considering ways to increase enrollments in the course. Woven throughout these curriculum-based efforts are data collection and dissemination and publication of results.

The dissemination of Dr. Regassa's SoTL efforts has occurred at college-wide and university-wide levels. She is a frequent speaker at new faculty orientation. She has given a variety of talks to college and university audiences regarding SoTL with the goal of increasing involvement in SoTL activities by her colleagues. Statewide, Dr. Regassa received funding and completed projects with USG-PRISM funding to the East Central Georgia Region. Upon completion of these projects, Dr. Regassa gave presentations to workshops at PRISM meetings. Given her efforts, Dr. Regassa has been recognized with a University Award for Excellence in SOTL in 2006, a College of Science and Technology Teaching Award in 2008, and nominations for both College and University Service awards in 2009.

Dr. Regassa is actively involved with SoTL efforts in her professional societies, including the Southeastern Branch of the American Society of Microbiology, and received their Ivan Roth Award in 2006. Also in 2006, she was named an American Society for Microbiology SoTL Scholar-in-Residence. She is President-Elect of the Southeastern Branch of the American Society of Microbiology and will keep her SoTL emphasis at the forefront while leading this society. She was nominated for an Association of Southeastern Biologists Meritorious Teaching Award in 2008. Given Dr. Regassa's successes in SoTL, it follows that her national reputation is steadily growing. She has given talks at a national level, was selected to attend the National Bioinformatics Institute in Washington, D.C., and has presented her SoTL research at Addis Ababa University in Ethiopia.

Dr. Regassa has incorporated SoTL efforts into teaching, scholarship and service at multiple levels. She is the recent recipient of one of the largest NSF grants in SoTL ever received in the state of Georgia apart from the USG-PRISM Initiative. She is also one of the success stories of the USG-PRISM initiative and its associated grant programs. Dr. Regassa used USG-PRISM funding and her own NSF funding for projects in a logical and stepwise fashion that culminated in the NSF GK-12 funded Molecular Biology Initiative. She is making connections between colleges and K-12 schools. She is targeting introductory college courses and she is collecting data and publishing results. I believe her record makes her an exceptionally strong candidate for this award. I support her nomination with my highest recommendation.

Sincerely,

Stephen P. Vives, Ph.D.
Department Chair of Biology

AMERICAN SOCIETY FOR MICROBIOLOGY

Education Board

April 23, 2009

Nomination Committee
2010 Regents' Scholarship of Teaching and Learning (SOTL) Award
USG Office of Academic Affairs
Atlanta, Georgia

To Whom It May Concern,

I am pleased to prepare this letter for Dr. Laura Regassa, associate professor of biology at the Georgia Southern University in Statesboro, GA. My name is Amy Chang and for the previous 28 years, I have served the Education Board of the American Society for Microbiology (ASM). The ASM is the oldest and largest life science organization, representing 42,000 members worldwide. About 60% of the members are microbiologists employed as faculty, staff, administrators, researchers, and students at colleges and universities. The Board advances the Society's mission to educate individuals at all levels in the microbiological sciences.

The Board accomplishes the Society's education mission through programs and services such as (i) research fellowships supporting 60 undergraduate students annually, (ii) annual undergraduate education conference for 300 biologists, (iii) 6 professional development institutes for biologists, (iv) quarterly education feature magazine and refereed journal in biology education research published annually, and (v) peer-reviewed, educational resources such as classroom activities, inquiry-based laboratories, visual images and animations.

The ASM is a voluntary organization. The ASM members, serving as leaders and scientific experts, work with a professional staff to sponsor programs, advance the Society's mission, and ensure stability. It is in this capacity that I met Dr. Regassa in 2005.

Dr. Regassa's most significant contribution to the profession has been her leadership role in undergraduate biology education. In 2005 she was selected from a national competition to participate in the ASM Scholars-in-Residence program. The program, modeled after the Carnegie Academy for the Scholarship of Teaching and Learning (CASLT), seeks to build capacity among biologists in research and reflective practices that result in improved student learning and sustained reform efforts. The scholarship of teaching and learning is a process by which faculty think critically about their teaching practices, similar to their approach of disciplinary research, and modify their teaching practices while addressing challenges in student learning. In the past members of scientific societies, including ASM, were concerned mostly with disciplinary research; however, the landscape is changing and Dr. Regassa is a leader in this effort. Several activities deem mentioning:

- Leadership with the Southeastern Branch of the ASM. The ASM Branches are regional affiliates of the national organization; in 2009 there are 34 Branches in the US. The ASM Branch meetings provide scientific and educational opportunities to 100-300 scientists, postdoctoral scientists, educators and students locally. For many college biologists, especially those from community colleges and primary undergraduate institutions, the ASM

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- Branch meetings are the *sole venue* for professional development. In addition, the Branch meetings are critically important as they serve state and regional needs, where 80% of the underserved populations acquire their post-secondary education. For the 2009 Branch meeting, Dr. Regassa is serving as the Scholarship of Teaching and Learning (SoTL)-track Program chair. In 2005, she was an invited speaker on teaching undergraduate students molecular biology both effectively and economically.

- Leadership with the ASM General Meeting. The annual ASM General Meeting brings together 7000+ microbiologists from the US and abroad in microbiology research, education and training. Dr. Regassa presented on project-based molecular biology curriculum on *three occasions* at the ASM General Meetings in 2006-2008.

- Leadership with the ASM Conference for Undergraduate Educators. The annual ASM Conference for Undergraduate Educators, established 15 years ago, brings together 300+ biologists committed to teaching excellence. It is the primary conference for pre-tenure faculty (60% of attendees) to gain the knowledge, skills and networks to becoming excellent teachers. It is the primary conference for community college faculty (55% of attendees). About 80% of participants teach general biology as well as introductory genetics, cell biology or microbiology. Dr. Regassa presented on high school and undergraduate programs in molecular biology in 2006 and 2008.

- Leadership in advancing national curriculum guidelines and peer-reviewed resources in undergraduate biology education. As a member of the ASM editorial review committee for undergraduate curriculum resources since 2005, Dr. Regassa commits time to ensuring that all faculty and students have access to resources that promote national guidelines and best practices in teaching and learning in undergraduate microbiology education. The ASM curriculum guidelines and peer-reviewed resources are hosted at the website MicrobeLibrary. The MicrobeLibrary is the major microbiological clearinghouse for teaching resources and contributing partner of the NSF National Science Digital Library.

Dr. Regassa's leadership role in SoTL exemplifies her understanding and commitment to improved student learning based on evidence and reflective practices. I recommend her highly for the 2010 Regents' Scholarship of Teaching and Learning (SOTL) Award from Georgia Southern University. Thank you for the opportunity to recommend Dr. Laura Regassa for this important award.

Sincerely,

Amy L. Chang
Director, Education Department
American Society for Microbiology