



STEM Education Transition Fall 2015 Report

To: Dr. A. Jerald Ainsworth, Provost and Senior Vice Chancellor for Academic Affairs

From: Dr. Jennifer T. Ellis

CC: Dr. Valerie C. Rutledge, Dean of the College of Health, Education, and Professional Studies

Date: December 9, 2015

Re: STEM Transition from College of Arts & Sciences (CAS) to the College of Health Education and Professional Studies (CHEPS)

Introduction

This report responds to a request for an update on the progress of the transition of the STEM Education from the College of Arts & Sciences to the College of Health Education and Professional Studies. Per the University Planning & Resources Advisory Council (UPRAC) and the Chancellor's Budget Rebalancing Report it was determined that the transition of the STEM teachers' program to CHEPS will save money and minimize overhead. It is essential for UTC to maintain a strong focus in STEM and the training of teachers in STEM. With that in mind we must position our STEM teachers' preparation program to produce outstanding graduates in an efficient and effective manner. Administrative functions and communication lines for interacting with Hamilton County Schools for field placement are in place by the School of Education in CHEPS and acknowledged by external partners. Transfer of administrative oversight for STEM will be effective July 1, 2015 and given a completion transition date by the end of FY16.

The provost was to charge a committee to develop a plan to implement this change that maintains quality, serves students, and addresses concerns.

Some of the issues to be addressed by this committee were to include:

- The role of mentor teachers
- The early classroom experiences
- Inventory and transfer of materials
- Evaluate if curricular changes are needed
- Determine if students in the STEM Education program major in a discipline (Math Education) and take classes for the credential and teaching experience

Overview

The transition of the STEM Education program to CHEPS officially began on July 1, 2015 under the direction of Dr. Ellis. The transition began with focusing on ensuring a smooth transition of the NSF Noyce grant and informing NSF of changes to the PI (Dr. Ellis) and Co-PI (Dr. Manuel Santiago), establishing a budget for the final year of funding and submitting the year 4 report to NSF. The next major area of focus was determining class schedules and addressing any immediate student issues to help them transition to the new leadership team and welcome them to CHEPS. Other areas of focus were reaching out to current and new STEM Education partners on and off campus to determine new ways we can collaborate to enhance the experience of STEM Education students and have a larger impact on the STEM community in Chattanooga.

Accomplishment

- Established new collaborations with the following partners:
 - TechTown
 - Creative Discovery Museum
 - Learning Blade
 - UTC's Research Center for Applied Biomolecular, Behavioral, and Health Studies (CABBHS)
- Held several meetings with Jamie Parris, Hamilton County Department of Education Director of Secondary Math & Science to establish better collaboration and partnerships between both programs
 - Established Science Education and Math Education tasks force for current HCDE master teachers (per the recommendation of Mr. Parris and Mrs. Keri Randolph)
 - Overview Science Education Meeting held on October 14, 2015
 - Reviewed program course descriptions and held discussions on the effectiveness of UTC's STEM Education at preparing pre-service Science Teachers
 - Overview Math education Meeting held on December 1, 2015
 - Reviewed program course descriptions and held discussions on the effectiveness of UTC's STEM Education at preparing pre-service Math Teachers.
- Identified partner schools for STEM Education Classes to better support the curriculum and make the placement of students more effective and efficient
 - STEM 1030 Step1 & Step 2-Combo
 - Calvin Donaldson Elementary School
 - Redbank Elementary School
 - Ivy Academy
 - CGLA

- CSAS
- STEM 4010 Project Based Instruction
 - CGLA
 - STEM School
 - Ivy Academy
- Strong collaboration with the STEM Education Student Organization (SESO)
 - SESO helped with recruiting at all summer orientations as well as the transfer student open house
 - SESO participated in the CHEPS open house during homecoming
 - Dr. Ellis attended every advisory board meeting and SESO sponsored event
- Established a working 2015-2016 STEM Education Advisory Board, consisting of collaborating partners on and off campus, held Fall 2015 meeting 10/12/15

2015-2016 UTC STEM Education Advisory Board Member

- **Mrs. Shelley Pritchard**-Assistant Principal at Signal Mountain Middle/High School (Former HS Chemistry & STEM Ed Master Teacher)
- **Dr. Tony Donen**-STEM School Principal
- **Dr. Elaine Swafford**-Executive Director of Chattanooga Girls Leadership Academy (CGLA)
- **Mr. Jamie Parris**-Hamilton County Department of Education Director of Secondary Math & Science
- **Mrs. Keri Randolph**-PEF, Director of the Southeastern Tennessee STEM Innovation Hub
- **Mr. Cordell Carter II**-CEO/Executive Director of TechTown
- **Dr. Jayne Griffin**-Director of Education at Creative Discovery Museum
- **Mr. Tim Baker**-Director of Education at Tennessee Aquarium
- **Mr. Joshua Sneideman** –Vice President of Learning Blade
- **Britlee Gaines**-Education Specialist at the Chattanooga Zoo (STEM Education Alumni)
- **Mr. Perry Storey**- Director Challenger STEM Learning Center
- **Dr. Manuel Santiago**-UTC Chemistry Department, STEM Faculty Member, NSF Noyce Co-PI
- **Dr. Ethan Carver**-UTC Biology, Geology and Environmental Science Department
- **Dr. Gail Meyer**-UTC Chemistry Department
- **Dr. Jack Thompson**-UTC Computer Science
- **Dr. Cecelia Wigal**-UTC Engineering & STEM Faculty
- **Dr. Jonathan Mies**- UTC Biology, Geology and Environmental Science Department
- **Dr. Matt Matthews**-UTC Math Department
- **Dr. Robert Marlowe**-Physics and Astronomy Department
- **Ms. Erin Perry**-STEM Education Student Organization President
- **Mr. Billy Millican**-STEM Middle Grades

Advisory Board Meeting Action Items

Deliverables	Status
Increase recruitment of Noyce interns for the Fall semester	Increased from 3 interns last year (all working for STEM Education), to 10 (2 working for STEM Ed, 1 Challenger Center, 1 Creative Discovery Museum, 1 TN Aquarium, 1 CABBHS, 2 Conducting Chemical Education Research, 2 developing STEM Transfer Student Strategic Plan)
Host an Internship Fair for STEM Students for	Through collaboration with Joshua Sneideman and

Spring & Summer Internship opportunities	other collaborating partners the internship fair was held in the Challenger Center on 11/19/15
Focus on expanding recruiting to not just UTC STEM students but to transfer students	Hired transfer STEM students from Cleveland and Chattanooga State Community to provide a report on their transition from their respective CC to UTC and develop the ideal pathway
Highlight accomplishments of STEM Students	STEM Education bulletin boards were all updated to better reflect an active program

Transition Milestones

Milestones Descriptions	Target Date	Completion Date	Percentage Complete	Status
Identify Advisory Board Members and Hold First Meeting	10/12/15	10/12/15	100 %	Held Fall 2015 meeting; will send report to advisory board at the end of the semester with updates on action items discussed. Will hold another meeting Spring 2016 to plan next steps.
Implementation Team Areas of Consideration Review Process <ul style="list-style-type: none"> • The role of mentor teachers • The early classroom experiences • Evaluate if curricular changes are needed • Determine if students in the STEM Education program major in a discipline (Math Education) and take classes for the credential and teaching experience 	11/30/15	4/22/15	25 %	Determined it was best to establish tasks force of experts (e.g. Master Science & Math Teachers, Advisory Board Members, UTC STEM Dept Heads, Current Students and Alumni, and Current & Former STEM Education Faculty to review and evaluate the program) to conduct a more thorough SWOT Analysis before making any suggestions and changes. All key members of the task force and boards have been identified and are ready to begin the evaluation process in the Spring.
Inventory	11/30/15	2/26/16	75 %	Current STEM Ed work-study student has very diligently conducted an inventory of all lab equipment in CANX 103, and is

				90% complete with her inventory of CANX 105, in the Spring she will complete CANX 105 as well as all of the offices in the other CANX building.
--	--	--	--	---

Issues

Description	Support Needed
<p>Conducting a comprehensive SWOT Analysis</p> <ul style="list-style-type: none"> Data collection strategy has been developed and reviewed with stakeholders (e.g. STEM Department Heads, Current Students, and CHEPS Dean). Evaluation Participants have been identified 	<p>During the transitions from UTeaChanooga to STEM Education-CAS, to STEM Education-CHEPS not all of the files were transferred which will hinder the effectiveness of the evaluation strategy. Will need help from Academic Affairs as well as NSF to have access to all reports submitted on STEM to get a more holistic view of the impact the program has had on STEM pre-service teacher preparation</p>
<p>Developing a sustainability plan for STEM instructors</p>	<p>Current instructors consist of one Master Teacher (part-time), two current UTC faculty members, and one adjunct faculty member from Chatt State. Identifying current Master Science & Math teachers to possibility teach modules during the semester may be a more feasible way to ensure the courses stay relevant and are not dependent on faculty already teaching at an overload capacity.</p>

During this academic year (2015-16) Dr. Ellis has served director of STEM Ed, program coordinator and advisor of all STEM students (current and potential/transfer), and has been the placement coordinator and observer of two of the three STEM courses.