

CERTIFICATION PAGE

Certification for Authorized Organizational Representative or Individual Applicant:

By signing and submitting this proposal, the Authorized Organizational Representative or Individual Applicant is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding debarment and suspension, drug-free workplace, lobbying activities (see below), responsible conduct of research, nondiscrimination, and flood hazard insurance (when applicable) as set forth in the NSF Proposal & Award Policies & Procedures Guide, Part I: the Grant Proposal Guide (GPG) (NSF 10-1). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U. S. Code, Title 18, Section 1001).

Conflict of Interest Certification

In addition, if the applicant institution employs more than fifty persons, by electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative of the applicant institution is certifying that the institution has implemented a written and enforced conflict of interest policy that is consistent with the provisions of the NSF Proposal & Award Policies & Procedures Guide, Part II, Award & Administration Guide (AAG) Chapter IV.A; that to the best of his/her knowledge, all financial disclosures required by that conflict of interest policy have been made; and that all identified conflicts of interest will have been satisfactorily managed, reduced or eliminated prior to the institution's expenditure of any funds under the award, in accordance with the institution's conflict of interest policy. Conflicts which cannot be satisfactorily managed, reduced or eliminated must be disclosed to NSF.

Drug Free Work Place Certification

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant is providing the Drug Free Work Place Certification contained in Exhibit II-3 of the Grant Proposal Guide.

Debarment and Suspension Certification

(If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency?

Yes

No

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant is providing the Debarment and Suspension Certification contained in Exhibit II-4 of the Grant Proposal Guide.

Certification Regarding Lobbying

The following certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding \$100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000.

Certification for Contracts, Grants, Loans and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Certification Regarding Nondiscrimination

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative is providing the Certification Regarding Nondiscrimination contained in Exhibit II-6 of the Grant Proposal Guide.

Certification Regarding Flood Hazard Insurance

Two sections of the National Flood Insurance Act of 1968 (42 USC §4012a and §4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:

- (1) community in which that area is located participates in the national flood insurance program; and
- (2) building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:

- (1) for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
- (2) for other NSF Grants when more than \$25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

Certification Regarding Responsible Conduct of Research (RCR)

(This certification is not applicable to proposals for conferences, symposia, and workshops.)

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative of the applicant institution is certifying that, in accordance with the NSF Proposal & Award Policies & Procedures Guide, Part II, Award & Administration Guide (AAG) Chapter IV.B., the institution has a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students and postdoctoral researchers who will be supported by NSF to conduct research.

The undersigned shall require that the language of this certification be included in any award documents for all subawards at all tiers.

| | | | | |
|--|------------------------------|-----------------------------|------------|---------------------------|
| AUTHORIZED ORGANIZATIONAL REPRESENTATIVE | | SIGNATURE | | DATE |
| NAME | | Electronic Signature | | Oct 21 2010 3:49PM |
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* EAGER - EARly-concept Grants for Exploratory Research

** RAPID - Grants for Rapid Response Research

NATIONAL SCIENCE FOUNDATION
Division of Undergraduate Education

NSF FORM 1295: PROJECT DATA FORM

The instructions and codes to be used in completing this form are provided in Appendix II.

1. **Program-track** to which the Proposal is submitted: **ATE-Targeted Research on Technician Education**
2. Name of **Principal Investigator/Project Director** (as shown on the Cover Sheet):
Tyson, William
3. Name of submitting **Institution** (as shown on Cover Sheet):
University of South Florida
4. **Other Institutions** involved in the project's operation:
FLATE Center
Polk State College
ICF International
State College of Florida
Hillsborough Community College

Project Data:

- A. Major Discipline Code: **58**
- B. Academic Focus Level of Project: **AL**
- C. Highest Degree Code: **A**
- D. Category Code: **R**
- E. Business/Industry Participation Code: **NA**
- F. Audience Code: **HS** _ _ _ _ _
- G. Institution Code: **PUBL**
- H. Strategic Area Code: **IT**
- I. Project Features: **2 4 5** _ _ _

Estimated number in each of the following categories to be directly affected by the activities of the project during its operation:

- J. Undergraduate Students: **170**
- K. Pre-college Students: **170**
- L. College Faculty: **41**
- M. Pre-college Teachers: **36**
- N. Graduate Students: **0**

NSF ATE: Successful Academic and Employment Pathways in Advanced Technologies

Project Summary

The Florida Advanced Technological Center (FLATE) at Hillsborough Community College (HCC), the Departments of Sociology and Anthropology at the University of South Florida (USF), and ICF International propose to examine the progression of students from high school into advanced technology programs at community colleges and into the workforce. Research in STEM education often emphasizes science, engineering and mathematics disciplines; however, in light of the growing need for highly trained workers, associates degrees in technological education are increasingly valuable. This study proposes to focus on the discipline of engineering technology (ET) by examining student participation on the pathway from high school to community college to the workforce. The mixed methods approach will rely on extant student-level data in the Florida Department of Education (FLDOE) PK-20 Education Data Warehouse (EDW) and site visit data to answer the following research questions:

- (1) Who enrolls in engineering technology community college programs out of high school?
 - a. How are student demographic and academic characteristics related to ET enrollment?
 - b. How do students learn about ET programs (i.e. outreach)?
 - c. How can the pathway from high school into ET programs be improved?
- (2) How do engineering technology students benefit from enrollment and degree attainment?
 - a. What are the most critical steps in ET degree attainment?
 - b. How do these students become ET graduates?
 - c. How do ET students differ from comparable students in their degree and employment outcomes?

The primary audience for the proposed work is the administrators, faculty and teachers at high school engineering career academy schools, engineering technology programs at community colleges, and employers and workers from industry partners who hire engineering technology graduates.

Intellectual Merit

Findings from this research will inform community colleges, high schools and industry on how students can navigate pathways from high school to workforce with better insight into how to prepare and support students. Findings will also inform policy makers at national, state and local levels while producing knowledge guiding and amplifying what is currently known about the engineering technology pathway. FLATE and USF are well qualified to undertake this work as it builds on current activities and goals.

Broader Impacts

FLATE provides exemplary industry partnerships, workforce opportunity, and educational synergy throughout the state of Florida by connecting industry and workforce needs to targeted educational endeavors at ten community and state colleges across Florida. This study will examine student pathways from high school through community college to industry in-depth in one region of Florida. Results from the study will be presented and discussed annually at the Florida Forum on Engineering Technology to identify ways to use the research findings to meet NSF ATE's goals of improving the education of students in engineering technology and in addition produce more graduates to meet labor demands. Topics will be identified by the collaborators to best meet their organizational needs while promoting NSF ATE goals for improving the education of student in engineering technology.

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| Biographical Sketches (Not to exceed 2 pages each) | 14 | _____ |
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| Current and Pending Support | 12 | _____ |
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| Appendix (List below.) (Include only if allowed by a specific program announcement/ solicitation or if approved in advance by the appropriate NSF Assistant Director or designee) | _____ | _____ |
| Appendix Items: | | |

*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

Successful Academic and Employment Pathways in Advanced Technologies

Introduction

The Florida Advanced Technological Center (FLATE) at Hillsborough Community College (HCC) and the departments of Sociology and Anthropology through the Alliance for Applied Research in Education and Anthropology (AAREA) at the University of South Florida (USF) submit this proposal to examine the progression of students from high school into advanced technology programs, specifically engineering technology, at community colleges and into the workforce. Research in STEM education often emphasizes science, engineering and mathematics bachelor's degree attainment; however, in light of the growing need for highly trained workers, associates degrees in technological education are increasingly valuable. The National Science Foundation Advanced Technological Education (NSF ATE) program supports research to understand how more students can be drawn to the technological education pathway and graduate with a college degree. The ATE program simultaneously responds to the need for well trained technicians, the changing role of the community college including increased emphasis on market orientation, growing diversity of students, and merging vocational and educational programs to facilitate student success (Zinser and Lawrenz, 2004).

This study contributes to the overall mission of NSF ATE by addressing the following goals:

1. Understand recruitment and pathways into engineering technology programs
2. Improve the education of engineering technology programs
3. Recommend interventions at high schools to increase the visibility of engineering technology programs at local community colleges
4. Produce more qualified science and engineering technicians to meet workforce demands

Research must examine how high school students make educational decisions and prepare for the workforce or higher education as well as the benefits and drawbacks of technology education. Research must also examine how teachers and guidance counselors promote technology education and or, conversely, succumb to stigmas and discourage students from attending community colleges and/or pursuing technology education. The proposed study takes advantage of Florida career academies, the unique articulation agreement between high schools and community colleges, as well as Florida's emerging technology industry to address these concerns using a mixed-methods research strategy that relies on extant student-level longitudinal data and site visit data collected specifically for this study. FLATE and USF specifically propose to answer the following research questions that are in alignment with these NSF ATE goals:

1. Who enrolls in engineering technology community college programs out of high school?
 - a. *How are student demographic and academic characteristics related to engineering technology program enrollment?*
 - b. *How do students learn about engineering technology programs (i.e. outreach)?*
 - c. *How can the pathway from high school into engineering technology programs be improved?*
2. How do students become engineering technology graduates?
 - a. *What are the most critical steps in engineering technology degree attainment from enrollment through gatekeeper courses and to the degree?*
3. How do engineering technology students benefit from enrollment and degree attainment?
 - a. *How do engineering technology students differ from comparable students in their degree and employment outcomes?*

Motivating Rationale

The proposed study examines the critically important mission of the community college to prepare skilled technical workers, particularly in the engineering sciences. In July 2009 President Obama announced the creation of the American Graduation Initiative declaring, “It will reform and strengthen community colleges like this one from coast to coast so they get the resources that students and schools need -- and the results workers and businesses demand” (whitehouse.gov, 2009). As noted in the American Graduation Initiative, over six million students attend community colleges, a majority of students in American higher education. In response to the U.S. labor forecast report by the Council of Economic Advisers, President Obama has called for an additional five million community college graduates to meet future labor needs. Community colleges are well suited to answer this presidential call as they serve several interrelated purposes: to prepare students for transfer to a four-year institution, to train students for technical jobs, and to provide continuing education for community members. In Florida, 2007-2008, over 80,000 students were enrolled in an associate’s degree program, with over 12,000 total awarded associate’s degrees in that same year (Florida Department of Education, 2009). Community colleges are working to strengthen student progress into technology careers (Zeidenberg and Bailey, 2010) and must ensure their programs meet the needs of a wide variety of students.

Community colleges are best known for their “open door” policy that welcomes low income, older non-traditional, immigrant, and first-generation college students, who make up 42 percent of community college students (American Association of Community Colleges [AACC], 2010; Borman, Workman, Miller and Micceri, 2007; Zeidenberg and Bailey, 2010). Community colleges account for 45% of all African American and 53% of all Hispanic college students (AACC, 2010). More women attend community colleges than men, yet women favor liberal arts or health professions over technology education. Of the 29,334 students who earned an A.S. in Engineering Technologies in 2008, only 7.2% were female and 72% were white (Digest of Educational Statistics, 2009). This is striking given the fact that 56% of community college students are female and 60% are white (AACC, 2010).

There is an unfortunate stigma attached to community colleges and engineering technology education. Wright, Washer, Watkins and Scott (2008) find that a majority of high school technology teachers and stakeholders surveyed believed technology education is a “dumping ground” in public secondary education. Technology education is often treated as a “craft,” making it difficult to legitimize technology education as a subject (Lewis, 2004). High schools may not offer programs that prepare students for community college technology education instead opting to prepare students for STEM bachelor’s degree programs. Programs such as Project Lead the Way have made pre-engineering more widely known and accepted into high school curricula (Lewis, 2004) and are perceived as highly beneficial by technology education stakeholders (Wright et al., 2008). Technology education and technological literacy are not part of the standard secondary education curriculum since many high school students are not familiar with careers in technological education. In addition, high school teachers, administrators, and peers may discourage students from pursuing community college engineering technology degrees.

Florida high schools currently implement strategies to better prepare students for careers, providing strong pathways into emerging technology education programs. One prevalent strategy is to offer high school science, technology, engineer and mathematics (STEM) career academies. Although career academies have existed as a high school reform model for more than 30 years, research on their effectiveness is a relatively recent development. Career academies in Florida

are defined as a “research-based program that integrates a rigorous academic curriculum with an industry-driven career curriculum” (FLDOE, 2006). Florida’s STEM-themed career academies offer training in information technology, health sciences, and science, technology, engineering, and mathematics. Career academies typically operate as schools-within-schools which provide an equal emphasis on academic and vocational curricular content and serve the needs of students with a broad range of ability levels (Kemple and Snipes, 2000). Career academies attempt to facilitate career pathways, defined as a series of educational steps and professional experience with the end result employment in a desired industry or occupational sector (Jenkins and Spence 2006). The proposed study examines the link between career academies and employment through technology education.

The Florida Landscape

In Florida, STEM industries are concentrated in mid-sized and large urban areas on the Atlantic Coast and Gulf regions (Figure 1). Between 7-8% of Floridians employed up the coast from Miami-Dade to the “Space Coast” area around Kennedy Space Center and Cape Canaveral in Brevard County are employed in industries coded as Professional, Scientific, and Technical Services by the Census. Hillsborough County at the heart of Tampa Bay has among the highest concentration of STEM industries in the state.

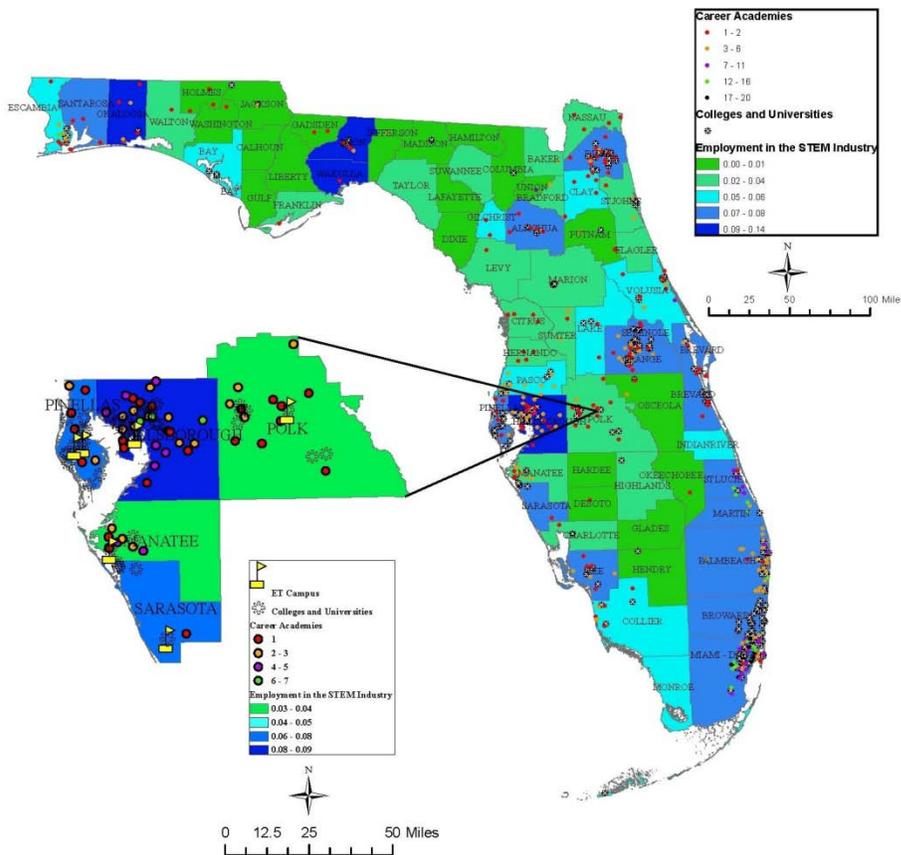


Figure 1. Florida high school career academies, colleges and universities, and STEM industry

Career academies are located in high density areas surrounding colleges and universities as well as in proximity to STEM industries as is the case in the Tampa region. Clusters of career

academies are located in large urban areas, Miami-Dade (Miami) in the southeast, Duval (Jacksonville) in the northeast, and Hillsborough (Tampa) on the west coast. Over 21% of all Florida career academy students in 2006-07 attended school in large cities and 61% attended school in suburbs of large areas. Forty-four percent of all Florida students attend schools in these areas, respectively. STEM career academies service a broader range of Florida high school students compared to non-STEM career academies. Over 15 percent of STEM career academy students live in rural Florida compared to only eight percent of non-STEM career academy students and 18 percent of all non-career academy students.

Research Methodology

In a review of research in technology education, Johnson and Daughtery (2008) point to a lack of mixed-method approaches. Most quantitative studies are descriptive, relying on surveys and self-reports. Most qualitative studies are case studies and not ethnographic. Only 17 percent of studies reviewed by Johnson and Daughtery (2008) utilized observable and verifiable data such as test scores. Student transcript data including administrative data collected by the FLDOE allow researchers to examine longitudinal trends occurring within a population rather than relying on survey data susceptible to selection bias, unpredictable response rates, and risks associated with retrospective data collection. In *The Toolbox Revisited*, Adelman (2006, 86-87) recommends “serious reading of the papers and reports from Florida’s tracking system...[F]or state-level postsecondary longitudinal studies, only Florida has produced data sets comparable to the national accounts.” We propose a mixed-method study that employs both descriptive statistics and empirical analysis of verifiable quantitative data from state databases along with ethnographic methods. This research design meets the call for research that provides “a deeper examination of the complexities and influencing factors that ultimately impact student learning” (Johnson and Daugherty, 2008, p. 26).

Quantitative analyses examine statewide trends in career academy participation and engineering technology enrollment. Qualitative analyses focus on four engineering technology programs housed at community college campus in the Tampa Bay region as well as feeder high schools and local industry. The research samples, key indicators, and the analytic strategies we propose are described in more detail below.

Quantitative Data and Sample

This study takes advantage of the extraordinary Florida Department of Education (FLDOE) PK-20 Education Data Warehouse (EDW). The state of Florida tracks students through pre-kindergarten to graduate education and through the workforce. Florida’s secondary and post-secondary data include transcripts of all courses taken in public high schools, community colleges, and universities. Demographic information such as age, gender, English language proficiency, free or reduced price lunch participation, special education status, and race/ethnicity are also included. Achievement data include state standardized test scores and achievement in all courses including participation in accelerated programs such as Advanced Placement (AP), International Baccalaureate (IB), and Honors. In the proposed study, we will analyze data ninth through twelfth grade high school and post-secondary coursetaking, achievement, and degree attainment among four cohorts of students who graduated from high school and entered into the full-time workforce or post-secondary schooling in 2007-08, 2008-09, 2009-10, 2010-11. Each cohort includes between 145,000 and 148,000 students. Career academy enrollment data have been available in Florida Department of Education (FLDOE) databases from 2006-07 onward.

Table 1 illustrates the proposed cohort structure for this study. Analyses of the 2007-08 and 2008-09 12th grade cohorts provide an initial profile of students who enroll in engineering technology programs, particularly with respect to career academy participation. We will apply that profile to later cohorts and examine changes in enrollment as engineering technology programs become more established in Florida community colleges. Using Cohorts 1 and 2, we will also examine the long-range impact of engineering technology enrollment and degree attainment on academic and employment outcomes.

Table 1. Cohort design by grade levels included in proposed study

| Baseline Cohorts | | | | |
|----------------------|------------|------------|------------|------------|
| Academic Year | Cohort 1 | Cohort 2 | Cohort 3 | Cohort 4 |
| 2004-05 | Grade 09 | | | |
| 2005-06 | Grade 10 | Grade 09 | | |
| 2006-07 | Grade 11 | Grade 10 | Grade 09 | |
| 2007-08 | Grade 12 | Grade 11 | Grade 10 | Grade 09 |
| ¹ 2008-09 | AS/AAS ET | Grade 12 | Grade 11 | Grade 10 |
| 2009-10 | AS/AAS ET | AS/AAS ET | Grade 12 | Grade 11 |
| 2010-11 | Employment | AS/AAS ET | AS/AAS ET | Grade 12 |
| ² 2011-12 | Employment | Employment | AS/AAS ET | AS/AAS ET |
| ² 2012-13 | Employment | Employment | Employment | AS/AAS ET |
| ² 2013-14 | Employment | Employment | Employment | Employment |
| ² 2014-15 | Employment | Employment | Employment | Employment |

¹ First year of the engineering technology program at Hillsborough CC

² Data updates during the tenure of the proposed study

Quantitative measures

Using Florida’s administrative data and the site visit data we will collect, we will construct several measures of high school preparation that predict enrollment into engineering technology programs. These measures are described below.

Career academies: Measures of enrollment in either (1) STEM-themed career academies or (2) other career academies as defined as enrollment in any one of these programs at any point in time, as well as year-by-year indicators of enrollment in each of these programs as identified through the Florida transcript data. Career academies offer traditional academic coursework within the context of a career focus, which may encourage career academy participants to pursue AS degrees. We use the state identifier of career academy participation to flag individual students in Engineering and Information Technology career academies and distinguish them from students in other career academies (e.g., culinary arts, fashion) that would not be prospective pathways to ET enrollment and an engineering technology degree. We also use individual and school enrollment patterns along to examine the course-taking patterns at each grade-level (grades 9-12) and the first year of postsecondary academic enrollment (grade 13) and/or employment using data from the FLDOE Florida Education & Training Placement Information Program (FETPIP).

Mathematics and Science/STEM Coursetaking: High school coursetaking is defined as: (1) number of technology courses taken, (2) two measures indicating highest course taken in mathematics and science in high school respectively (see Burkam & Lee, 2003), and (3) grade-by-grade coursetaking milestones (i.e. 9th grade Algebra I and 10th grade Geometry) indicators coded for mathematics and science. These milestones represent courses that would place a

student on track to enroll in an ET program prepared to take gatekeeper courses towards earning an ET degree.

Student characteristics: Gender, race/ethnicity, eligibility for free or reduced-price lunch, limited English proficiency, special education status, cohort membership, and prior achievement (middle school) as identified through the Florida administrative data.

Workforce participation: defined as any employment within the state of Florida. Using FETPIP, we will be able to measure quarterly wages earned and the industry in which students were employed using six-digit North American Industry Classification System (NAICS) codes during four key time periods: (1) in high school, (2) between high school graduation and first enrollment in a community college or university, (3) while enrolled in college, and (4) after departure from college. We are particularly interested in student employment in high-technology industries as defined by the Bureau of Labor Statistics. These industries use state-of-the-art techniques, devote a high proportion of expenditures to research, and employ a high proportion of scientific, technical, and engineering personnel (Hecker, 2005, p. 19).

Engineering technology enrollment: ET enrollment is defined as taking an engineering technology core courses in the first year of college. This is the primary dependent variable in analysis of ET enrollment based on high school factors as well as the primary independent variable in analyses of academic attainment and employment outcomes of ET students and prospective ET students who did not enroll in ET programs.

High school characteristics: minority concentration, % free/reduced lunch, school size, urbanicity, academic organization (e.g., proportion of students taking non-academic courses), academic composition (e.g., aggregate prior achievement), and AYP status as identified in the Florida administrative data. Of particular interest are academic programs (i.e. types of career academies, Honors, AP and IB coursetaking, dual enrollment) and proximity to community colleges and universities, specifically community colleges that house engineering technology programs.

Qualitative Data and Sample

Site visits will take place in one region of Florida that contains a concentration of high school STEM career academies, STEM industry, and community colleges that offer advanced technology associates degrees (see Figure 1 inset map of the region). This region also is home to FLATE, a National Science Foundation Regional Center for Advanced Technological Education, who is one of the main collaborators on this project. As a regional center, FLATE is partnered with high schools, community colleges and industries. We have received confirmation of support and collaboration from St. Petersburg College (SPC, Clearwater and Largo campuses), State College of Florida (SCF, Bradenton and Venice campuses in Manatee and Sarasota), and Polk State College (PSC, Winter Haven campus) along with Hillsborough Community College Brandon campus at which FLATE is located. Figure 1 shows the location of these campuses and their proximity to career academies and other college and university campuses.

In the first year of the study (August 2011- July 2012), the qualitative research team will develop and pilot interview and focus group interviews based on concepts identified in the research literature. Pilot sites will include FLATE, one community college, one feeder high school career academy, and one STEM industry. One to two administrators and faculty at FLATE, the community college and high school, 2 employees of the STEM industry, and up to 10 students at the community college and high school will be included in the pilot test sample. The pilot protocols will be further refined during and after the pilot study. The pilot protocols

and final protocols will be submitted for review to the University of South Florida's Institutional Review Board through a modification request.

In years two and three (August 2012-July 2014), FLATE, four engineering technology (ET) programs at Hillsborough Community College, St. Petersburg College, State College of Florida and Polk State College, four high school that are near the community colleges and offer engineering career academies, and two to four STEM industries that are currently partners with each ET program at the four community colleges will be asked to participate in an ethnographic case study. Up to four interviews will be conducted at FLATE, two administrators/guidance counselors, six faculty members, and up to 20 students will be asked to participate from each community college and high school career academy. A subset of up to 10 students at the community colleges and high schools will be invited to attend participatory workshops to explore students' perceptions of the "degree pipeline" through activities such as *Fishes and Boulders* (Matakohe Heritage and Amenity Values Project, 2005). From each participating STEM industry, an employer and up to four employees will be asked to participate in interviews. Permission to conduct research at the participating community college and high schools will be sought. All participation is voluntary and modest stipends will be offered as tokens of appreciation. Table 2 illustrates the qualitative data collection strategy for this project.

Table 2. Qualitative data collection

| Career Academies/ High Schools | | Community Colleges | | Industry | |
|-----------------------------------|-------------------------|--------------------|-------------------------|------------------------------------|------------|
| Qualitative Sample | Methods | Qualitative Sample | Methods | Qualitative Sample | Methods |
| Faculty | Interviews | Faculty | Interviews | Workers Employers Recruiters | Interviews |
| Students | Interviews | Students | Interviews | | |
| | Focus Groups | | Focus Groups | | |
| | Participatory Workshops | | Participatory Workshops | | |
| | | FLATE Staff | Interviews | | |
| Guidance Counselors | Interviews | Advisors | Interviews | | |
| Archival Material | Document Analysis | Archival Material | Document Analysis | | |

Qualitative measures

Administrator/Guidance Counselor Interview: Two administrators who are knowledgeable about the ET program at the community college and the engineering career academy at the high school, such as a guidance counselor, from each of the participating schools will be asked to participate in a semi-structured interview. Interviews will 60 minutes. Questions may focus on how students are recruited for the program, student support services, and other topics.

Faculty Interview: Four to six faculty members who instruct ET courses as part of the degree program will be asked to participate in a semi-structured interview. The interview will last 45- 60 minutes. Questions will focus on instruction and curriculum.

Student Focus Group Interview: Community college and high school students enrolled in ET program courses or the STEM career academy will be asked to participate in focus group

interviews. Approximately 4-8 students will be included in each focus group and between two to four student focus groups will be conducted at each site. Each focus group will last 45-60 minutes. Questions will focus on student agency, student support services, and future plans to learn about the students' experiences and its impact on their perceptions of their own career trajectories will be documented.

Student Participatory Workshops: From each community college and high school, a small group of volunteer students will participate in a series of participatory workshops. The workshops provide an opportunity for the students to work together and discuss a topic they come up with, such perceptions of supports and barriers of the "degree pipeline" through *Fishes and Boulders*. The workshops will be lead by the USF qualitative research team.

Archival Documents: Course catalogs, recruitment materials, and other materials related to the ET programs at the community colleges and high school STEM career academy may be requested to enhance understanding of the programs.

This qualitative research plan will add to our understanding of the impact of STEM-themed career academies on individual career development, entrance into community colleges and potential impact on the STEM workforce.

Analysis Strategies

In this section, we describe our analysis strategies for addressing each research question.

Research Question 1: Who enrolls in engineering technology community college programs out of high school?

- a. How are student demographic and academic characteristics, particularly STEM career academy participation, related to engineering technology program enrollment?
- b. How do students learn about engineering technology programs (i.e. outreach)?
- c. How can the pathway from high school into engineering technology programs be improved?

To address Research Question 1, we will use extant student-level, longitudinal data as well as interviews, focus groups, and participatory workshops with high school students as well as interviews with teachers and guidance counselors at high schools that feed into engineering technology programs. The goal of this question is to develop an academic and demographic profile of students who enroll in engineering technology programs out of high school and determine what distinguishes students who fit that profile who enroll from those who do not. We want to learn how the students who did enroll decided to enroll in ET and determine how to market ET to comparable students who did not enroll.

Using FLDOE data, we will begin with basic descriptive statistical methods (e.g., t-test, chi-square) to examine ET enrollment patterns by student and school characteristics for two cohorts of students who were 12th graders in 2007-08 and 2008-09. We will use multi-level logistic regression models that will predict the likelihood of ET enrollment based on student (e.g., race/ethnicity, socio-economic status, prior achievement) and school characteristics (e.g., proximity to ET programs, urbanicity, school size). Exhibit 1 presents the multi-level model we will use to determine the likelihood of ET enrollment and to calculate propensity of STEM career academy participation.

While we are able to statistically control for prior achievement and other demographic and academic characteristics, there are likely critical unobserved characteristics that differentiate those who participate in STEM career academies from those who do not. While imperfect, our

solution is to examine the variance among STEM career academy students and to select a matched sample from non-STEM career academies and non-career academy students.

We will employ propensity score matching in order to reduce selection bias because public school students in Florida are not randomly assigned into situations in which they have an equal likelihood of enrolling in STEM career academies. This strategy is particularly useful for selecting appropriate comparisons in non-experimental studies. We will match students using propensity scoring methodology (Luellen, Shadish & Clark, 2005; Rosenbaum & Rubin, 1983; Rubin, 1997; Rubin & Thomas, 2000) to adjust for initial differences in covariates among treatment and comparison groups. This strategy refers to a class of multivariate methods for constructing treatment and comparison groups based on pairing study subjects (e.g., schools and/or students) with similar propensities for receiving treatment given an often large set of covariates (Rosenbaum & Rubin, 1983; Rubin, 1997; Rubin & Thomas, 2000). Propensity-score-based matching has been widely accepted as an optimal method for establishing an equivalent comparison group in observation studies and has been used in well-crafted research studies (e.g., Hong & Raudenbush, 2005). Specifically, we will use a multi-level propensity scoring design which includes school- and student-level covariates (Hong & Raudenbush, 2005).

Exhibit 1. A Multi-level model assessing probability of engineering technology enrollment by student and school characteristics, 2007-08 and 2008-09

Level 1 (Students)

$$(ET\ Enrollment)_{ij} = \pi_{0j} + \pi_{1j}(\text{female})_{ij} + \pi_{2j}(\text{FRPL})_{ij} + \pi_{3j}(\text{African-American})_{ij} + \pi_{4j}(\text{Latino})_{ij} + \pi_{5j}(\text{Asian})_{ij} + \pi_{6j}(\text{LEP})_{ij} + \pi_{7j}(\text{eighth grade standardized test scores})_{ij} + \pi_{8j}(\text{STEM career academy participation})_{ij} + e_{ij}$$

Level 2 (Schools)

$$\pi_{0j} = \gamma_{00} + \gamma_{01}(\text{proximity to ET program})_j + \gamma_{02}(\text{urbanicity})_j + \gamma_{03}(\text{school size})_j + \gamma_{04}(\text{demographics})_j + \gamma_{05}(\text{STEM career academy offered})_j + u_{0j}$$

$$\pi_{kj} = \gamma_{k0}, k = 1\sim 8$$

The level-1 model estimates the probability of engineering technology enrollment as a function of student characteristics.

Where

π_{0j} is the average probability (in logit metric) of engineering technology enrollment for student i in school j ;

$\pi_{1j} \sim \pi_{8j}$ are the effects of student characteristics on dual enrollment participation in school j ; and

e_{ij} is a random error associated with student i in school j .

At level-2, the school level, the average ET enrollment rate is modeled as a function of school characteristics and the other level-1 coefficients are all fixed at their respective grand means.

Where

γ_{00} is the average dual enrollment rate (in logit metric) across all schools;

$\gamma_{01} \sim \gamma_{04}$... are the effects of school characteristics on average dual enrollment participation rate;

u_{0j} is a random error associated with school j on the average dual enrollment participation rate; and

γ_{k0} , $k = 1\sim 8$, are the effects of student characteristics on the average dual enrollment participation rate across all schools.

This method increases the reliability of treatment effect estimates by grouping students with similar academic profiles to determine how career academy participation affects the likelihood of

ET enrollment. Through this design, this study builds a profile of students who enroll in ET programs with respect to their career academy participation and other academic factors.

Research Question 2: How do students become engineering technology graduates?

- a. *What are the most critical steps in engineering technology degree attainment from enrollment through gatekeeper courses and to the degree?*

Research Question 3: How do engineering technology students benefit from enrollment and degree attainment?

- a. *How do engineering technology students differ from comparable students in their degree and employment outcomes?*

The goal of these questions is to determine how students who enroll in ET fare after high school compared to similar students who did not enroll in ET. For the first set of analyses, we use FLDOE data from incoming cohorts of community college students who take gatekeeper courses to examine the effects of prior achievement, age, prior workforce participation as well as gatekeeper course achievement and work while enrolled in ET on persistence to an ET degree. We will not be able to conduct analyses at both the student-level and ET program-level because few community colleges offer ET degrees. We will, however, take note of the unique histories and arrangements of each program when conducting analyses and drawing conclusions from our findings.

The second part of this analysis is establishing the comparison group to examine the effects of a statewide community college degree program into which students self select. Using the propensity scores generated by conducting multinomial regression of the 2007-08 and 2008-09 cohorts, students each cohort will be classified as prospective ET students based on the likelihood that they would pursue ET after graduating from high school. This approach allows us to match ET students to a similar group of students who did not pursue ET degrees. Using this approach among likely ET students would reveal how students within the ET profile benefit from pursuing an AS degree compared to pursuing other degrees or entering the workforce after high school. This approach also examines how schools that currently do not feed into ET programs could improve the degree and workforce outcomes of their graduates by encouraging students within the ET profile to pursue ET degrees.

As described in Table 1, we can estimate the impact of ET enrollment and ET degree attainment on key outcomes (e.g. AA, AS, or BA degree attainment and quarterly wages) from four to seven years after high school graduation using each of the four cohorts in this study. To examine the relationship between the ET enrollment and academic and employment outcomes, we will conduct a series of multi-level regression models (logistic when outcomes are binary) for each of the outcome measures described above. These models examine student-level effects (e.g. high school coursetaking and achievement) among ET students and the comparison group and effects of high school characteristics on long-range outcomes. Due to the complex nature of enrollment and coursetaking in community colleges and public universities, we will not be able to assessment the Level-3 impact of ET programs, other community college programs and courses, and university courses and programs on long-range outcomes. College students are not nested within one institution throughout their college careers.

We recognize that our treatment group of ET enrollees may be very small compared to the comparison group of similar students. Through preliminary research, the experiences of the FLATE team, and discussions with key informants, we know that recent high school graduates who enter these ET and related programs have a unique academic and demographic profile compared to students who pursue AA and BA degrees or enter the workforce directly out of high

school. We also know that most ET students attended local high schools within close proximity to community college campuses that offer ET programs. Each of the four ET programs that serve as research sites in this study began between August 2008 and January 2010 and currently draw from a limited pool of students located at nearby feeder high schools. We will use proximity to current ET campuses as a major school-level factor in identifying likely ET students. To focus on this small pool of students we may need to restrict our early analysis to districts and schools near community college campuses that offer an ET degree, thus examining student-level factors at a limited number of applicable schools. While we are unable to make these decisions *a priori*, we will consult with an expert in this area and request that our advisory group review our plans prior to implementation as we explore these issues. Analysis of qualitative data provides a contextualized understanding of decisions students make along the pathway from high school to community college to employment in a STEM industry. These data will provide insight into what are perceived as critical steps (research question 2a) as students become engineering technicians (research question 2).

Timetable

Year 1 (August 2011-July 2012):

- Create project brochure highlighting the goals and purpose of the study for stakeholders
- Conduct pilot site visits to pilot test instruments in one high school, community college, and industry
- Request additional FLDOE data updates
- Carry out data preparation, descriptive analyses of current FLDOE data
- Conduct propensity scoring analysis to create samples of students with equal propensity of being in a STEM-themed career academy and propensity score analysis at the school level to create pairs of schools with equal propensity of having a STEM-themed career academy using Cohorts 1 and 2
- Conduct a literature review on technician education
- Write 1 paper for dissemination at a relevant conference and/or journal article for a peer reviewed journal

Year 2 (August 2012-July 2013):

- Carry out site visits to four high schools with engineering career academies, four community colleges with AS degrees in engineering technologies, and local industry that hires AS degreed engineering technicians
- Conduct multivariate, multi-level analysis of ET enrollment based on student-level demographic and academic factors and school-level characteristics among students in STEM career academy propensity groups.
- Carry out data preparation, descriptive analyses of FETPIP employment data and post secondary academic outcomes.
- Conduct multivariate, multi-level analysis of the impact of enrollment in engineering technologies on early post-secondary outcomes among Cohorts 1 and 2 students who enrolled in ET programs and comparable students who did not.
- Write 1-2 papers for peer-review journal and/or conference presentations (e.g., AERA)

Year 3 (August 2013-July 2014):

- Carry out site visits to four high schools with engineering career academies, four community colleges with AS degrees in engineering technologies, and local industry that hires AS degreed engineering technicians

- Conduct multivariate, multi-level analysis of the impact of AS engineering technology degree attainment on short and long-range post-secondary employment and academic outcomes among students who enrolled in ET programs and comparable students who did not in all cohorts.
 - Conduct quantitative analyses of extant data for students in grade 11, 12, and post-secondary cohorts.
 - Write 1-2 papers for peer-review journal and/or conference presentations (e.g., AERA)
- Year 4 (August 2014- July 2015)
- Complete analyses of all data sources
 - Write 1-2 papers for peer-review journal and conference presentations (e.g., AERA)

Project Management/Roles

Dr. Will Tyson, Principal Investigator, is an Assistant Professor of Sociology at the University of South Florida. Dr. Tyson is currently Co-Principal Investigator on an NSF-REESE funded study, “On-track for STEM Careers: Access to Rigorous and Relevant STEM Courses in Florida’s High Schools,” and is a currently senior personnel on an NSF-ITEST funded study, “Expanding Opportunities for Innovative and Technology-rich STEM Experiences through Florida’s High School Career Academies.” Dr. Tyson is also a senior researcher on an NSF-ADVANCE funded study titled, “Alliance for the Advancement of Florida’s Academic Women in Chemistry and Engineering.” Dr. Tyson recently served as senior researcher in an NSF-STEP funded study, “Effects of College Degree Program Culture on Female and Minority Student Science, Technology, Engineering and Mathematics (STEM) Participation.” Findings from this project resulted in a Palgrave Macmillan edited book, *Becoming an Engineer in Public Universities: Pathways for Women and Minorities*. Dr. Tyson was also a post-doctoral research assistant on an NSF-ROLE funded project, “Understanding Factors that Sustain Science, Technology, Engineering, and Mathematics Career Pathways.” Findings from the most recent studies inform this proposal. Dr. Tyson will oversee all aspects of the project and will lead quantitative analysis.

Dr. Kathryn Borman, Co-Principal Investigator, is Professor of Anthropology and is affiliated with the Alliance for Applied Research in Education and Anthropology (AAREA) in the Department of Anthropology at the University of South Florida. She has extensive experience in educational reform and policy and evaluation studies, serving as P.I. of large National Science Foundation research projects including the NSF-REESE funded study, “On-track for STEM Careers: Access to Rigorous and Relevant STEM Courses in Florida’s High Schools”, and an NSF-ITEST funded study, “Expanding Opportunities for Innovative and Technology-rich STEM Experiences through Florida’s High School Career Academies.” Dr. Borman was PI of an NSF-STEP funded study, “Effects of College Degree Program Culture on Female and Minority Student Science, Technology, Engineering and Mathematics (STEM) Participation,” that resulted in a Palgrave Macmillan edited book, *Becoming an Engineer in Public Universities: Pathways for Women and Minorities*. Borman will inform all aspects of the project and oversee qualitative research activities and dissemination for the project.

Dr. Marie Boyette, Co-Principal Investigator, is Associate Director of FLATE: NSF Regional Center for Advanced Technological Education. As co-principal investigator, Dr. Boyette will facilitate communication among the community colleges, high schools, industry partners and USF.

Dr. Marilyn Barger, Senior Personnel, is Executive Director of FLATE. She will serve as a liaison among the partners and help coordinate meetings of the collaborators. These meetings may occur in conjunction with FLATE's semiannual Florida Forum on Engineering Technology. The purpose of the meeting will be to discuss research findings from this project and ones being conducted at partnering institutions to identify ways to use the research findings to meet NSF ATE's goals of improving the education of students in engineering technology and produce more graduates to meet labor demands.

Ms. Bridget Cotner, Senior Personnel, is a Faculty Research Associate in the Department of Anthropology's Alliance for Applied Research in Education and Anthropology (AAREA) at the University of South Florida. She is project manager of an NSF-ITEST funded study, "Expanding Opportunities for Innovative and Technology-rich STEM Experiences through Florida's High School Career Academies," and Co-Principal Investigator of an FL DOE funded study, "Evaluation of School Choice in Florida." Ms. Cotner, will lead the qualitative research activities, data collection and analysis.

Mr. Reginald Lee, Senior Personnel, is a Faculty Research Associate in the Department of Anthropology's Alliance for Applied Research in Education and Anthropology (AAREA) at the University of South Florida. Mr. Lee is a quantitative expert who has extensive experience using FL DOE administrative data. He has led quantitative analyses on the NSF-REESE funded study, "On-track for STEM Careers: Access to Rigorous and Relevant STEM Courses in Florida's High Schools," and an NSF-ITEST funded study, "Expanding Opportunities for Innovative and Technology-rich STEM Experiences through Florida's High School Career Academies." Mr. Lee will provide quantitative analyses guidance and will assist with analysis.

Ms. Cassandra Workman Whaler, Project Manager, is a research assistant in the Department of Anthropology's Alliance for Applied Research in Education and Anthropology (AAREA) at the University of South Florida. She was project manager of the NSF-STEP funded study, "Effects of College Degree Program Culture on Female and Minority Student Science, Technology, Engineering and Mathematics (STEM) Participation." She will ensure compliance with USF's Institutional Review Board, annual and final reports, serve as a liaison with our partners, and participate in qualitative research activities, analysis and dissemination.

Mr. Thomas Horwood, Lead Evaluator, has nine years experience conducting program evaluation and applied research studies across disciplines with a focus on education and human development programs, utilizing skills in program evaluation design; survey and assessment development and implementation; and quantitative and qualitative data collection, analysis, interpretation (i.e., mixed-methods); and reporting. Mr. Horwood is an experienced project manager and task coordinator, with expertise in research management. He has contributed to evaluations and applied research projects of programs that focus on school dropout prevention, high school success, college readiness, teacher professional development, beginning teacher mentoring and induction, workforce development, alternative education, education outreach and marketing, and college graduate retention. He also has worked on technical assistance projects providing support in the areas of school emergency management and Temporary Assistance to Needy Families (TANF). He will lead the evaluation of this project.

Plan for Sustainability

Producing more qualified science and engineering technicians to meet workforce demands is a common goal shared by NSF ATE, FLATE and USF. This proposal will build on FLATE's strong partnerships with collaborators at community colleges, high schools and industry in one

region of Florida. This study aims to assist FLATE in reaching their long-term goal of becoming “Florida’s leading resource for education and training expertise, leadership, projects, and services to promote and support the workforce in the high performance production and manufacturing community” (FLATE, 2009).

To build on the important work currently being undertaken by the partnering institutions and encourage sustainability, discourse among the partners during the proposed study and after will occur in conjunction with FLATE’s semiannual Florida Forum on Engineering Technology. The purpose of the proposed meeting will be to discuss research findings from this project and projects being conducted at partnering institutions. FLATE and USF will work with collaborators to identify topics that best meet the needs of high schools, community colleges, and industries to sustain pathways to engineering technology enrollment, degree attainment, and successful employment outcomes.

Evaluation Plan

The evaluation component of this project is intended to complement and support the efforts of the research team. Our approach to evaluation involves: (1) monitoring the progress of the project; (2) providing objective reviews of project instruments, protocols, analysis plans, and reports; and (3) serving as an external resource for technical advice. The ICF team will be led by Mr. Thomas Horwood. He will be supported by Dr. Aikaterini Passa, who is an expert in quantitative data analysis, and Dr. Teresa Garcia Duncan, who will serve as senior advisor. Mr. Horwood will maintain regular, monthly contact with Dr. Tyson and his team via teleconferences and email, bringing in Dr. Passa and Dr. Duncan as needed. Mr. Horwood will meet in-person with the research team twice each year; Dr. Passa or Dr. Duncan will attend an in-person meeting once a year.

In his role as the lead evaluator, Mr. Horwood will provide commentaries and written reviews of the project’s various activities. He will prepare monitoring memos, in which the research team’s progress towards project milestones is assessed and suggestions for addressing challenges are provided. He – and Dr. Passa or Dr. Duncan, as needed – will review project plans, instruments, and reports. These reviews will address both the strengths and weaknesses of the proposed approach, offer constructive suggestions and recommendations for improvement, and proceed iteratively, until Dr. Tyson and the evaluation team are in agreement that the final products are both substantively appropriate and meet high standards of methodological rigor. Mr. Horwood will prepare an annual evaluation report, summarizing evaluation activities and findings. The evaluation reports will be submitted to NSF as part of the annual reporting requirements, as evidence of the quality of the project’s quality assurance procedures. Evaluation reports will be submitted 30 days prior to the due dates of the end-of-year and final reports.

Each the evaluation will assess progress according to the workplan. Year-by-year evaluation activities will include the following: (1) Review of data collection protocols, site visit criteria, and quality of the propensity score matching results (year 1); (2) evaluate the interpretability of course trajectories between the cohorts (years 2 and 3); and (3) review the replicability of the analyses conducted; provide recommendations for future directions (year 4).

Dissemination Plan

Dissemination of information will be multifaceted with effort being taken to ensure all types of stakeholders are included. The principal investigator and co-principal investigators will attend

the annual PI meeting hosted by NSF ATE to disseminate information from this study and encourage possible collaboration with other similarly funded projects on conference panels, roundtables and paper sessions. Educational research and engineering technology conferences will be forums for researching other researchers, institutions that may benefit from the proposed work, such as community colleges and school district participants. Participating high schools, community colleges and industries will receive condensed, user-friendly materials containing project findings and opportunities for further involvement in terms of participation in FLATE's semiannual Florida Forum on Engineering Technology. Products will include presentations and papers to conferences, published journal articles, book chapters, project brochures and other user-friendly materials for stakeholders as indicated in the timetable section above.

Results from evaluations of selected prior NSF support

NSF award # 0525408; STEM Talent Expansion Program (STEP) Type II (Research). The NSF STEP-funded project titled, "Effects of College Degree Program Culture on Female and Minority Student STEM Participation," examined the culture and climate of engineering and chemistry programs in Florida State schools, including public four-year institutions, private engineering colleges, and community colleges. Findings indicated that community college students expressed feeling stigmatized because of their enrollment at a community college, and faculty at four-year institutions believed community college students were less prepared. In spite of this, we found that community college transfers were as likely to be successful as their first time in college (FTIC) counterparts. In this study, students described attending community colleges for a whole host of strategic reasons including knowing other students who are already there to wanting smaller class sizes and more personal interaction with faculty. When self-identification as an engineer occurs, students are more likely to persist even if it means taking longer or having to retake classes. Our study showed how transformative early exposure to STEM was in creating this identity. Students also stressed the importance of real-world applications such as labs associated with classes or employment in a professor's lab.

NSF award # 0833503; Innovative Technology Experiences for Students and Teachers (ITEST) Studies. The NSF ITEST-funded study, "Expanding Opportunities for Innovative and Technology-rich STEM Experiences through Florida's High School Career Academies," examines pathways to mathematics and science careers from Florida's high school career academies. This study investigates who enrolls in high school career academies and to what end? High school career academy enrollment data are available from the state of Florida's administrative data and are being analyzed to determine who enrolls in terms of demographic breakdown into different types of career academies (STEM and non-STEM), and what high school and post high school outcomes (employment and postsecondary enrollment) result from participation in STEM and non-STEM themed career academies. These analyses are still underway but preliminary findings regarding prior achievement (8th grade Florida Comprehensive Assessment Test (FCAT)) revealed that STEM career academy male students achieved significantly higher math FCAT scores in eighth grade than both non-STEM ($p = 0.001$) and non-career academy males ($p = 0.001$). STEM males were better prepared than their female counterparts, with 19% of career academy males attaining level 5 proficiency versus 12% of career academy females. However, the overall difference between STEM males and females, as well as non-STEM males and females was not significant. Preparation for participation in STEM career academies is needed prior to secondary school.

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WILL TYSON

Professional Preparation

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|------------------------|--------------------------|-----------------------------|
| Duke University | Sociology | Ph.D., 2004 |
| Duke University | Women's Studies | Graduate Certificate., 2003 |
| Duke University | Sociology | M.A., 2001 |
| Wake Forest University | Sociology and Psychology | B.A., 1998 |

Appointments

| | |
|--------------|--|
| 2005-present | Assistant Professor, Department of Sociology, University of South Florida, Tampa, FL |
| 2004-2005 | Post-doctoral Research Associate, College of Education, University of South Florida, Tampa, FL |
| 2000-2004 | Research Assistant, Duke University |

Selected Publications

Journal Publications and Book Chapters

Wao, Hesborn, Kathryn M. Borman, Reginald Lee, & Will Tyson. (Under review). Testing the Glass Ceiling Effect among Civil Engineers

Tyson, Will. (Under review). High School Biology, Chemistry, and Physics Coursetaking and Achievement Pathways to Science, Technology, Engineering, and Mathematics (STEM) Degree Attainment.

Tyson, Will & Kathryn M. Borman. (Under review). Can You Beat an A in Calculus? High School Math Coursetaking and Achievement Effects on STEM Bachelor's Degree Attainment.

Tyson, Will. (Under review). Demographic, Academic, and Economic Determinants of Science, Technology, Engineering and Mathematics (STEM) Graduate Degree Attainment.

Tyson, Will, Reginald Lee, Kathryn Borman, & Mary Ann Hanson. (2007). Science, Technology, Engineering and Mathematics (STEM) Pathways: High School Science and Math Coursework and Postsecondary Degree Attainment. *Journal of Education of Students Placed At Risk*, 12 (3): 243-270.

Borman, Kathryn M., Reginald Lee, & Will Tyson. 2006. "Florida's A+ Plan: Education Reform Policies and Student Outcomes." Pp. 300-346 in *Educational Reform in Florida: Diversity and Equity in Public Policy*, edited by Kathryn Borman and Sherman Dorn.

Synergistic Activities

1. National Science Foundation Research and Evaluation of Engineering and Science Education (REESE) Review Panelist, April 2007
 2. Co-Coordinator of American Sociological Association Sociology of Education Workshop, "Key Developments in the Sociology of Education," August 2006.
 3. Invited participant in American Sociological Association Spivack Workshop on School Composition and School Outcomes, May 2006.
 4. Member of Committee for Racial and Ethnic Minorities, Southern Sociological Society, 2006-present
 5. Participant in American Sociological Association Sociology of Education Section Conference, August 2005
 6. Participant in American Sociological Association Sociology of Education Section Policy Conference on No Child Left Behind, August 2004.
-

Collaborators

Kathryn Borman, University of South Florida
Theodore Micceri, University of South Florida
Sherman Dorn, University of South Florida
Reginald Lee, University of South Florida
Mary Ann Hanson, Center for Career and Community
Hesborn Wao, University of South Florida

Doctoral Students Advised

Joshua Miller, current, University of South Florida
Keona Lewis, current, University of South Florida

Graduate Advisor

Kenneth I. Spenner, Duke University

KATHRYN BORMAN

A. Professional Preparation

| | | |
|---|------------------------|----------|
| Miami University, Oxford, Ohio | English | BA 1963 |
| Mills College, Oakland, California | English | MA 1972 |
| University of Minnesota, Minneapolis, Minnesota | Sociology of Education | PhD 1976 |

B. Appointments:

Professor of Anthropology and lead researcher at the Alliance for Applied Research in Education and Anthropology (AAREA), University of South Florida: 8/05-Present

College of Arts and Sciences, Department of Anthropology

Associate Director and Professor of Anthropology, University of South Florida: 12/93-8/05

College of Arts and Sciences and David C. Anchin Center

Associate Dean of Research and Development

College of Education, University of Cincinnati: 9/92-11/93

Associate Dean of Graduate Studies and Research

College of Education, University of Cincinnati: 7/87-9/92

Professor of Education and Sociology

Department of Educational Foundations and Department of Sociology

University of Cincinnati: 9/87-11/93

Associate Professor of Education

Department of Educational Foundations, University of Cincinnati: 9/81-9/87

Assistant Professor of Education

Department of Educational Foundations, University Of Cincinnati: 9/76-9/81

Instructor, University of Minnesota: 9/74-6/76

Department of Psychological and Philosophical Foundations of Education

Instructor: Department of Sociology, Hamline University: Fall, 1976, 1975

Co-Instructor: Department of Psychology, University of Minnesota: 1973

D. Selected Publications

Borman, K.M., Tyson, W., & Halperin, R. (2010). *Becoming an engineer in public universities; pathways for women and minorities*. New York, NY: Palgrave MacMillian

Smerdon, B.A., & Borman, K. M. (2009). *Saving America's high schools*. Washington, D.C.: The Urban Institute Press

Borman, K. M.; Cahill, S. E.; & Cotner, B. A., (eds). (2007). *Praeger handbook of American high schools*. Westport, CT: Praeger/Greenwood Press.

Tyson, W., Lee, R., Borman, K. M., & Hanson, M.A. (2007). Science, technology, engineering, and mathematics (STEM) pathways: High school science and math coursework and postsecondary degree attainment. *Journal of Education for Students Placed At Risk*, 12(3), 243-270.

Borman, K.M., Kersaint, G., Cotner, B., Lee, R., Boydston, T., Uekawa, K., Kromrey, J., Katzenmeyer, W., Baber, M.Y., & Barber, J. (2005). *Meaningful urban education reform: Confronting the learning crisis in mathematics and science*. SUNY Press.

Synergistic Activities

Dr. Kathryn Borman is Professor of Anthropology and lead researcher at the Alliance for Applied Research in Anthropology and Education, Department of Anthropology, University of

South Florida. Dr. Borman has extensive experience in educational reform and policy as well as evaluation studies. Dr. Borman's program of research has focused on including groups that are underrepresented in science, mathematics, engineering and technology, namely minority students, females, and urban populations, implementing a science professional development program for elementary teachers to increase science achievement, and understanding STEM pathways to post-secondary education. She conducted a replication and efficacy randomized control trial of a professional development program that focused on science inquiry practice and equity, empowerment, and exploration for the students that changed how teachers teach and how students learn science. As a professor in Anthropology, Dr. Borman is involved in training graduate students for research and teaches courses on mixed method designs and analysis. Graduate and post-doctoral students benefit professionally by being involved in every aspect of the ongoing research and evaluation projects. Dr. Borman's participation in national committees has had policy implications for education.

Collaborators

Daniel Aladjem, American Institutes for Research
Charles E. Bidwell, University of Chicago
Rolf K. Blank, State Education Assessment Center of the Council of Chief State School Officers
Jomills Henry Braddock II, University of Miami
B. Bradford Brown, University of Wisconsin-Madison
Mihaly Csikszentmihalyi, University of Chicago
Jeanne K. Diesen, Indian River Community College
Adam Gamoran, University of Wisconsin-Madison
Harold S. Himmelfarb, U.S. Dept of Education
Mary Hess, National Opinion Research Center, University of Chicago
Thomas B. Hoffer, University of Chicago
Joseph Murphy, Vanderbilt University
Fred M. Newmann, University of Wisconsin, Madison
Alan R. Sadovnik, CUNY
Barbara Schneider, National Opinion Research Center, University of Chicago
Becky Smerdon, Quill Research Associates
Samuel Stringfield, Johns Hopkins University

Doctoral Students Advised

Amina Alio, 2000
Krystal Bishop, 2000, 4-Year Liberal Arts College, Tennessee
Bridget Cotner, current, University of South Florida
Jonathan Gayles, 2002, University of South Florida
Melinda Hess, 2005, University of South Florida
Reginald S. Lee, current, University of South Florida
Jason Miller, current, University of South Florida
Arland Nguema, current, University of South Florida
Caroline Peterson, 2008, University of South Florida
Nebiyu Taddesse, 1995, U.S. Dept of Education

Graduate Advisor

John Weidman, University of Pittsburgh

MARIE BOYETTE

A. Professional Preparation

Hillsborough Community College, Tampa, FL, AA with Honors – Liberal Arts-Pre Education, 1974
University of South Florida, Tampa, FL, BA, Communication, Magna Cum Laude, 1999
University of South Florida, Tampa, FL, MA, Adult Education and Training, 2001
University of South Florida, Tampa, FL, PhD, Curriculum and Instruction: Adult Education/Measurement and Research/Communication, 2008

B. Appointments:

Associate Director, FLATE: NSF Regional Center for Adv Technological Education, HCC, Tampa, FL: 2009-Present
Distance Learning Coordinator, Education Outreach, USF, Tampa, FL: 2002-2009
Adjunct Faculty, Public Speaking, HCC, Tampa, FL: 2008- Present
Adjunct Faculty, The University Experience (college success course) USF, Tampa, FL: 2001-2009
Adjunct Faculty, Professional Career Development & Writing and Speaking for Business, PHCC, Dade City, FL: 1999-2001

C. Selected Publications

Meeting Market Needs and Developing Relevant Programs. Panelist for Town Hall Meeting, UCEA Southern Region Annual Conference, 2006, Daytona Beach, FL, M. Boyette
Creating a Learning Autobiography. M. Boyette, V. Janesick, 2006. A qualitative exercise for adult learners, graduate presentation, USF.
An Investigation of the Online Learning Environment in Higher Education through the Observations and Perceptions of Students of Color. Dissertation, 2008, M. Boyette
The Engineering Technology Degree Program: A Unified, Statewide Approach to Meet the Needs of Florida's Hi-Tech Manufacturing Industry, Florida Association of Community Colleges Joint Commission Spring Conference, 2010, Orlando, FL, M. Boyette, M. Barger
The Dog Ate My Flash Drive (2006-2009). University Experience textbook chapter to help students successfully identify and use technology services on campus. M. Boyette

D. Synergistic Activities

- Industrial Advisory Committee, FLATE
- Engineering Technology Forum, FLATE/HCC
- Engineering Technology Advisory Council, HCC
Professional development for educators in soft skills (FLATE's Toothpick Factory)
- Quantitative and qualitative studies and reports for FLATE
- FLATE's first Robotics Summer STEM Camp for teachers and first "Girl's Only" Robotics Summer Camp
- Contributor to USF's University Experience Student Success textbook
- Selected to participate in USF's new Mentoring First-Year Students Program
 - Mentoring program is designed to keep students who carry an at-risk profile motivated, achieving, and in school

- HCC's Distance Learning Sub-committee

E. Collaborators

Collaborators and Co-Editors - M. Barger, FLATE

Graduate Advisor

Blank, William, University of South Florida

Closson, Rosemary, University of South Florida

Janesick, Valerie, University of South Florida

Kromrey, Jeff, University of South Florida

Young, William, University of South Florida

Marilyn Barger
Hillsborough Community College

(a) Professional Preparation

Agnes Scott College, Decatur, GA Chemistry B.A. 1973
University of Georgia, Athens, GA Chemistry graduate study 1976-1977
University of South Florida, Tampa, FL Engineering Science (Environ) B.S. (cum laude) 1983
University of South Florida, Tampa, FL Civil Engineering (Environmental) Ph.D. 1989
University of Michigan, Ann Arbor, MI Environmental Engineering Post-doc 1989-1991
University of Texas Brownsville, TX Curriculum and Teaching (12 cr hr) Grad courses 1999-2001
Lakewood College, Madison WI Curriculum and Teaching (3 cr hr) Grad course 2001
State of Florida Registered Professional Engineer FL: #43862
MSSC Certified Production Technician (CPT)

(b) Appointments

2004-present Executive Director & P.I., FLATE: NSF Regional Ctr for Adv Technological Education, HCC, Tampa, FL
1999-2004 Associate Prof. Manufacturing Technology, Hillsborough Community College, Tampa FL
1999-2006 Research Associate, University of South Florida College of Engineering, Tampa FL
1995-1999 Assistant Prof. Environmental & Civil En, FAMU-FSU College of Engineering, Tallahassee, FL
1991-1995 Assistant Prof. of Engineering (Environmental), Hofstra University, Hempstead, NY
1983-1987 Graduate Teaching Assistant, Civil Engineering, University of South Florida, Tampa, FL
1977-1978 Graduate Teaching Assistant, Organic Chemistry, University of Georgia, Athens, GA
1974-1977 Chemistry Instructor, Florida Keys Community College, Key West, FL

(c) Publications Engineering Education (*partial list*)

1. Barger, Centonze, Gilbert, Roe, Jenkins, "Baldrige/Sterling Model for ATE Center Evaluaton" ASEE Annual Conference 2009
2. Barger, Gilbert, Roe, Jenkins, "The Toothpick Factory: A Simulation Game for the Soft Skills" ASEE Annual Conference 2008
3. Barger, Gilbert, Roe, Jenkins, "Engineering Technology Forum: A Vehicle for Change" ASEE Annual Conference 2008
4. Roe, Barger, Gilbert, Jenkins, "A Process Map for Program Reform" ASEE Annual Conference 2008
5. Barger, Gilbert, Roe, Jenkins, "Engineering Technology Degree Reform in Florida" ASEE Annual Conference 2007
6. Barger, Leseicki, Hoff, Gilbert, Simington, Carraras, "Academic Industry Partnership to develop a training Platform for Highly Automated Systems", ASEE Annual Conference 2007.
7. "Made in Florida: A Model Outreach Campaign", CIEC Annual Conference, 2007
8. Barger, Roe, Gilbert, Jenkins, "Florida Advanced Technological Education Center" ASEE Annual Conference, 2005
9. Barger, Roe, Jenkins, "Florida Engineering Technology Degree Model", Advancing Innovations Conference, 2006.
10. Barger, Gilbert, Hickey, Hoff, Roe, "Technology Applications for High School Mathematics and Science Curricula", ASEE Annual Conference Proceeding, 2004.

(d) Synergistic Activities

- Manufacturer’s Association of Florida, Workforce and Education Committee Member
- MSSC National Panel of Experts
- National Visiting Committee for NSF ATE regional centers: TIME (MD) and CARCAM (AL)
- Industry Advisory Board for NSF ATE National Centers: NCME (National Center for Manufacturing Education) and AMTEC (Automotive Manufacturing, KY)
- Virtual Mentor, Inc Board of Directors (online student career mentoring application in Florida)
- Principle Investigator, BITT Workforce Grant (Florida Center of Excellence at USF for bio and medical related technology transfer)
- Program Advisory Boards for Engineering Technology (HCC, CFCC) and Advanced Water Treatment
- Developed multi-media curriculum content for U.S. Department of Education that used engineering examples for STEM applications to engineering examples for use by Hispanic students that have English as their second language.
- Developed and taught technology related content to working technicians in FL
- Developed multi media curriculum content for NSF-ATE that connected engineering examples for STEM applications in high school science and math.
- Develop integrated curriculum for inter city public elementary school that is designated a “magnet” center for mathematics and engineering.
- Provided professional development for elementary, middle and high school faculty on science and its role in modern “everyday” technology.

(e) Collaborators & Other Affiliations

(i) Collaborators and Co-Editors

Eric Roe Hillsborough Community College – FLATE

Richard Gilbert University of South Florida

Andrew Hoff University of South Florida

Bradley Jenkins St. Petersburg College

Ali Yalcin University of South Florida

Wilfrido Moreno University of South Florida

(ii)

Robert Carnahan University of South Florida

(iii) Thesis Advisees

Natalia Palacio Houston, TX

Silvana Ghiu San Diego, CA

Danielly Orozo unemployed

Miles Beamguard self employed – St. Petersburg, FL

Cliff Mertz Marine Science, USF- St. Pete Campus

Josh Scott AFCESA, Tyndall AFB

Bridget Cotner

A. Professional preparation

| | | |
|-----------------------------|----------------------------|------------------|
| University of South Florida | Curriculum and Instruction | Ph.D., Candidate |
| University of South Florida | Applied Anthropology | MA, 2001 |
| Ball State University | Anthropology | BA, 1998 |

B. Appointments

| | |
|--------------|--|
| 2006-present | Faculty Research Associate, Alliance for Applied Anthropology in Education and Anthropology, Department of Anthropology, University of South Florida |
| 1999-2006 | Research Associate, David C. Anchin Center, College of Education, University of South Florida |
| 1999 | Editorial Assistant, <i>Review of Educational Research</i> |
| 1997-1998 | Supplemental Instructor, Department of Anthropology, Ball State University |
| 1996-1998 | Tutor, The Learning Center, Ball State University |

C. Publications

- Lanehart, R. E., Borman, K. M., Boydston, T. L., Cotner, B. A., & Lee, R. S. (under review). Improving gender, racial and social equity in elementary science instruction and student achievement: The impact of a professional development program. Submitted to *Journal for Research on Educational Effectiveness*.
- Cotner, B. A., Workman Whaler, C., & Tyson, W. (2010). Producing STEM graduates in Florida: Understanding the Florida context. *Becoming an engineer in public universities: Pathways for women and minorities*. Borman, K. M, Tyson, W. & Halperin, R. H. (Eds.) page numbers. Palgrave Macmillan.
- Chanderbhan Forde, Susan, Grace, C. A. & Cotner, B. A. (2010). Program culture: How departmental values facilitate program efficacy. *Becoming an engineer in public universities: Pathways for women and minorities*. Borman, K. M, Tyson, W. & Halperin, R. H. (Eds.) page numbers. Palgrave Macmillan.
- Borman, K.M., Mueninghoff, E., Cotner, B.A., & Fredrickson, P. (2009). Teacher preparation programs. *International handbook of research on teachers and teaching*. Lawrence J. Saha and Anthony Gary Dworkin (Eds.), 123-140. Springer Science and Business Media, Inc: NY, NY.

Dixon, M., Borman, K.M., & Cotner, B.A. (2009). Current approaches to research in anthropology and education. In Sykes, G., Schneider, B., & Plank, D. N. (Eds.), 83-92. *Handbook of education policy research*. New York: Routledge Publishers for AERA.

D. Synergistic activities

Bridget Cotner is a Faculty Research Associate with the Alliance for Applied Research in Education and Anthropology in the Department of Anthropology at the University of South Florida. She is a qualitative researcher, and project director of an NSF-ITEST funded study, *Expanding Opportunities for Innovative and Technology Rich STEM Experiences through Florida's High School Career Academies*. She is co-principal investigator on the Florida Department of Education funded evaluation, *Evaluation of School Choice in Florida*. Ms. Cotner conducts an annual workshop on learning and using ATLAS.ti, a qualitative data analysis software program that is open to students and faculty at the University of South Florida. Ms. Cotner is currently a doctoral candidate in the Measurement, Research and Evaluation department at the University of South Florida's College of Education.

E. Collaborators and Other affiliations

Kathleen B. Comfort, WestEd

Harold S. Himmelfarb, Office of Educational Research and Improvement, U.S. Dept of Education

Becky Smerdon, Quill Research Associates

Larry Suter, Project Officer, National Science Foundation

F. Major Advisor

John Ferron, Ph.D. University of South Florida

Thomas Horwood

Education:

Mount Union College, Alliance, Ohio Business Administration BA 2000
Kent State University, Kent, Ohio Higher Education Administration M.Ed. 2002

Appointments:

Manager: 1/2008- Present
ICF International

Senior Associate: 2007-2008
ICF International

Associate: 1/2005-1/2007
Caliber Associates, Inc. (acquired by ICF International in October 2005)

Evaluator/Academic Program Coordinator, Bureau of Research Training and Services: 12/2004-1/2005
Kent State University

Outreach Program Coordinator for Research and Evaluation, Office of Corporate and Community Services, KSU Stark Campus: 8/2002- 12/2004
Kent State University

Research Assistant, Bureau of Research Training and Services: 1/2001-8/2002
Kent State University

Recent Publications and Presentations:

Taylor, B., Stein, N., Mack, A.R., Horwood, T.J., & Burden, F. (2008). *Experimental Evaluation of Gender Violence/Harassment Prevention Programs in Middle Schools, Final Report*. (NIJ-Sponsored, NCJ 221892). Available at <http://www.ncjrs.gov/pdffiles1/nij/grants/221892.pdf>.

Loyco, K., Horwood, T.J., & Dodge, S. (2007, Dec.). *Analysis of Emergency Response and Crisis Management grantees' district and school emergency management plans*. Fairfax, VA: Caliber Associates.

Loyco, K., Horwood, T.J., & Dodge, S. (2007, Dec.). *Report on Fiscal Years 2003, 2004 and 2005 Emergency Response and Crisis Management grantee final reports*. Fairfax, VA: Caliber Associates.

Zantal-Wiener, K. & Horwood, T.J. (2007, Nov.). *Evaluating school district emergency management plans using Government Performance Results Act (GPRA) performance measures and indicators*. Presentation at the American Evaluation Association Annual Conference, Baltimore, MD.

Basta, K. & Horwood, T.J., Hanson, M.A., & Ottenritter, N. (2007, Nov.). *Evaluating the Virginia Community College System professional development program: Lessons in conducting a formal assessment of a large-scale, centralized professional development initiative*. Poster presentation at the American Evaluation Association Annual Conference, Baltimore, MD.

Synergistic Activities

Mr. Thomas J. Horwood, a Senior Associate in the Community, Family, and Education Studies group at ICF International, has more than six years experience conducting program evaluation and applied research projects, serving as an evaluator of education programs at various levels (from local to statewide programs). He has extensive experience in program evaluation design, instrument development, and quantitative and qualitative data collection, management, analysis, and reporting. Mr. Horwood has contributed to studies of K-12 and postsecondary education programs that focus on teacher professional development, teacher preparation, teacher quality, alternative education, youth development, dropout prevention, and college graduate retention. As a member of the external evaluation team of the Ohio Mathematics and Science Partnership (OMSP) Program, Mr. Horwood contributed to the evaluation design and coordinated the data collection, management, analysis, and reporting. In addition, he led the development of content knowledge assessments designed to measure teachers' change in content knowledge in mathematics and science as a result of their participation in professional development. Mr. Horwood is an active member of the American Evaluation Association.

Collaborators and other Affiliations

Lance Anderson, ICF International

Michael Feder, National Academy of Sciences

Mary Ann Hanson, Center for Career and Community Research and ICF International

Raymond Hart, Kent State University

John Hitchcock, ICF International

Maureen Murphy, ICF International

Tracy Roberts, ICF International

Kathy Shapley, Edvance Research, Inc.

Lew Solmon, National Institute for Excellence in Teaching

Nan Stein, Wellesley College

Bruce Taylor, Police Executive Research Forum

Kristan Van Hook, National Institute for Excellence in Teaching

MEd Advisor: Mark Kretovics, Kent State University

Biographical Sketch for Reginald Lee

A. Professional preparation

McDaniel College (Western Maryland College), Sociology BA 1975
University of South Florida, Special Education MA 1991
University of South Florida, Educational Measurement & Research
Doctoral Candidate

B. Appointments

Faculty Research Associate, Alliance for Applied Research in Anthropology and Education, Department of Anthropology, University of South Florida
August 2005 - Present
Faculty Research Associate, David C. Anchin Center, University of South Florida
August 2004 – 2005
Research Associate, David C. Anchin Center, June 2000 - 2004
College of Education, University of South Florida, Tampa
Data Analyst, Policy and Services Research Data Center, June 1998 – June 2000
Department of Mental Health Law and Policy, Louis de la Parte Florida Mental Health Institute, University of South Florida, Tampa

C. Publications

- Georges, A., Borman, K. M., & Lee, R. S. (2010) Mathematics reform and teacher quality in elementary grades: Assessments, teacher licensure, and certification. *Educational Policy Analysis Archives*, 18(9). Retrieved [October 18, 2010], from <http://epaa.asu.edu/epaa/v18n9>.
- Wao, H. & Lee, R. S. (2010). Climate of Engineering Departments: Students' Perceptions. In Borman, K. M, Tyson, W. & Halperin, R. H. (Eds.). *Becoming an engineer in public universities: Pathways for women and minorities*. Palgrave Macmillan.
- Heppner, R.S., Lee, R.S. & Wao, H. (2010). Learning to be an Engineer. In Borman, K. M, Tyson, W. & Halperin, R. H. (Eds.). *Becoming an engineer in public universities: Pathways for women and minorities*. Palgrave Macmillan.
- Dedrick, R.F., Ferron, J.M., Hess, M.R., Hogarty, K.Y., Kromrey, J.D., Lang, T.R., Niles, J.D., & Lee, R.S. (2009). Multilevel modeling: A review of methodological issues and applications. *Review of Educational Research*, 79(1), 69-102.
- Lee, R.S., Borman, K.M., & Tyson, W. (2007). Florida's A+ Plan: Education reform policies and student outcomes. In K.M. Borman and S. Dorn, *Education reform in Florida: Diversity and equity in public policy*. Albany, NY: SUNY Press.
- Tyson, W., Lee, R., Borman, K.M., & Hanson, M.A. (2007) Science, technology, engineering, and mathematics (STEM) pathways: High school science and math coursework and postsecondary degree attainment. *Journal of Education for Students Placed At Risk*, 12 (3) 243-270.
- Uekawa, K, Borman, K., & Lee, R. (2007). Student engagement in U.S. urban high school mathematics and science classrooms: Findings on social organization, race and ethnicity. *The Urban Review*, 39 (1), 1-43.

Borman, K. M., Clarke, G., Cotner, B., & Lee, R. (2006). Cross-Case Analysis. In *Complementary methods for education*. American Educational Research Association.

Borman, K. M., Kersaint, G., Cotner, B., Lee, R., Boydston, T., Uekawa, K., Kromrey, J., Katzenmeyer, W., Baber, M. Y., & Barber, J. (2005). *Meaning urban education reform: Confronting the learning crisis in mathematics and science*. Albany, NY: State University of New York Press.

D. Synergistic activities

As a faculty research associate at the Alliance for Applied Research in Education and Anthropology, Department of Anthropology, and a doctoral candidate in the Department of Educational Measurement & Research in the College of Education at the USF, I collaborate with researchers on their research programs and assist doctoral students with data analysis or design issues. Currently conducting statistical analyses on two National Science Foundation funded projects, *Expanding Opportunities for Innovative- and Technology-Rich STEM Experiences Through Florida's High School Career Academies (ITEST)* and *On-Track for STEM Careers: Access to Rigorous and Relevant STEM Coursework in Florida's High Schools (REESE)* and leading two evaluations studies for the Florida Department of Education (*Evaluation of Florida's Charter School Program Grant, Evaluation of the Florida Voluntary Public School Choice Program*). More recently completed an NSF-funded project studying the effects of college degree program culture on female and minority students and an USDOE-funded randomized control trial assessing the efficacy of a science professional development program. Previous NSF research activities included examining the impact of systemic reform on mathematics and science achievement and student engagement in urban schools. Other research activities include equity and access issues in public education with a current emphasis on high school and college course-taking, minority student misrepresentation in special education and measures of school culture. In addition I have collaborated on community-based evaluations focused on community or education issues.

E. Collaborators and Other affiliations

- Kathryn M. Borman, Ph.D., University of South Florida
- John Ferron, Ph.D., University of South Florida
- Melinda Hess, Ph.D. Center for Research on Evaluation and Measurement
- Gladis Kersaint, Ph.D., University of South Florida
- Becky J. Smerdon, Ph.D., Quill Associates, Fairfax, Virginia
- William Tyson, Ph.D., University of South Florida
- Kasuaki Uekawa, Ph.D., ICF International, Alexandria Virginia
- Hesborn O. Wao, Ph.D., University of South Florida

F. Major Advisors

- Jeffrey D. Kromrey, Ph.D.
- Kofi Marfo, Ph.D.

SUMMARY PROPOSAL BUDGET

YEAR 1

| ORGANIZATION University of South Florida | | | | FOR NSF USE ONLY | | | |
|---|---|--------------|--------------------|---------------------------------|-------------------|-----------------------------|-------------------------------------|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR William T Tyson | | | | AWARD NO. | Proposed | Granted | |
| A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | | NSF Funded Person-months | | Funds Requested By proposer | Funds granted by NSF (if different) |
| | | CAL | ACAD | SUMR | | | |
| 1. | William T Tyson - PI | 0.00 | 0.00 | 1.50 | \$ 12,194 | \$ | |
| 2. | Kathryn M Borman - Co-PI | 0.00 | 0.90 | 0.30 | 19,710 | | |
| 3. | Bridget Cotner - Lead Qualitative Researcher | 0.00 | 1.80 | 0.60 | 13,828 | | |
| 4. | Reginald Lee - Measurement Lead | 2.40 | 0.00 | 0.00 | 9,511 | | |
| 5. | | | | | | | |
| 6. | (0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | 0.00 | 0.00 | 0.00 | 0 | | |
| 7. | (4) TOTAL SENIOR PERSONNEL (1 - 6) | 2.40 | 2.70 | 2.40 | 55,243 | | |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. | (0) POST DOCTORAL SCHOLARS | 0.00 | 0.00 | 0.00 | 0 | | |
| 2. | (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | 6.00 | 0.00 | 0.00 | 21,000 | | |
| 3. | (1) GRADUATE STUDENTS | | | | 17,748 | | |
| 4. | (0) UNDERGRADUATE STUDENTS | | | | 0 | | |
| 5. | (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | 6,146 | | |
| 6. | (1) OTHER | | | | 4,500 | | |
| TOTAL SALARIES AND WAGES (A + B) | | | | | 104,637 | | |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | 21,746 | | |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | 126,383 | | |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| | 1 laptop computers to support research | | | \$ 2,000 | | | |
| TOTAL EQUIPMENT | | | | | 2,000 | | |
| E. TRAVEL | | | | | 9,529 | | |
| 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | | | |
| 2. FOREIGN | | | | | 0 | | |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. | STIPENDS \$ _____ | | | 860 | | | |
| 2. | TRAVEL _____ | | | 2,176 | | | |
| 3. | SUBSISTENCE _____ | | | 0 | | | |
| 4. | OTHER _____ | | | 0 | | | |
| TOTAL NUMBER OF PARTICIPANTS (41) | | | | TOTAL PARTICIPANT COSTS | 3,036 | | |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. MATERIALS AND SUPPLIES | | | | | 4,000 | | |
| 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | 500 | | |
| 3. CONSULTANT SERVICES | | | | | 0 | | |
| 4. COMPUTER SERVICES | | | | | 0 | | |
| 5. SUBAWARDS | | | | | 54,815 | | |
| 6. OTHER | | | | | 8,784 | | |
| TOTAL OTHER DIRECT COSTS | | | | | 68,099 | | |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | 209,047 | | |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) | | | | | | | |
| MTDC (Rate: 47.0000, Base: 193266) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | 90,835 | | |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | 299,882 | | |
| K. RESIDUAL FUNDS | | | | | 0 | | |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | | \$ 299,882 | \$ | |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PI NAME William T Tyson | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | Date Of Rate Sheet | Initials - ORG | | | |

SUMMARY PROPOSAL BUDGET

YEAR 2

| ORGANIZATION University of South Florida | | | | FOR NSF USE ONLY | | | |
|---|---|--------------|--------------------|---------------------------------|-------------------|-----------------------------|-------------------------------------|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR William T Tyson | | | | AWARD NO. | Proposed | Granted | |
| A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | | NSF Funded Person-months | | Funds Requested By proposer | Funds granted by NSF (if different) |
| | | | | CAL | ACAD | SUMR | |
| 1. | William T Tyson - PI | | | 0.00 | 0.00 | 1.50 | \$ 12,560 |
| 2. | Kathryn M Borman - Co-PI | | | 0.00 | 0.90 | 0.30 | 20,301 |
| 3. | Bridget Cotner - Lead Qualitative Researcher | | | 0.00 | 1.80 | 0.60 | 14,243 |
| 4. | Reginald Lee - Measurement Lead | | | 2.40 | 0.00 | 0.00 | 9,796 |
| 5. | | | | | | | |
| 6. | (0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | | | 0.00 | 0.00 | 0.00 | 0 |
| 7. | (4) TOTAL SENIOR PERSONNEL (1 - 6) | | | 2.40 | 2.70 | 2.40 | 56,900 |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. | (0) POST DOCTORAL SCHOLARS | | | 0.00 | 0.00 | 0.00 | 0 |
| 2. | (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | | | 6.00 | 0.00 | 0.00 | 21,630 |
| 3. | (2) GRADUATE STUDENTS | | | | | | 18,280 |
| 4. | (0) UNDERGRADUATE STUDENTS | | | | | | 0 |
| 5. | (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | | | 6,330 |
| 6. | (1) OTHER | | | | | | 6,180 |
| TOTAL SALARIES AND WAGES (A + B) | | | | | | | 109,320 |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | | | 22,141 |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | | | 131,461 |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| | 1laptop computers to support research conducted at the field | | | | | \$ 2,000 | |
| TOTAL EQUIPMENT | | | | | | | 2,000 |
| E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | | | 15,416 |
| 2. FOREIGN | | | | | | | 0 |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. | STIPENDS | \$ | 4,640 | | | | |
| 2. | TRAVEL | | 0 | | | | |
| 3. | SUBSISTENCE | | 0 | | | | |
| 4. | OTHER | | 0 | | | | |
| TOTAL NUMBER OF PARTICIPANTS (284) | | | | TOTAL PARTICIPANT COSTS | | | 4,640 |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. | MATERIALS AND SUPPLIES | | | | | | 4,000 |
| 2. | PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | | 500 |
| 3. | CONSULTANT SERVICES | | | | | | 0 |
| 4. | COMPUTER SERVICES | | | | | | 0 |
| 5. | SUBAWARDS | | | | | | 55,395 |
| 6. | OTHER | | | | | | 10,102 |
| TOTAL OTHER DIRECT COSTS | | | | | | | 69,997 |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | | | 223,514 |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) | | | | | | | |
| MTDC (Rate: 47.0000, Base: 156200) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | | | 73,414 |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | | | 296,928 |
| K. RESIDUAL FUNDS | | | | | | | 0 |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | | | | \$ 296,928 |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PI NAME William T Tyson | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | Date Of Rate Sheet | | | Initials - ORG | |

SUMMARY PROPOSAL BUDGET

YEAR 3

| ORGANIZATION University of South Florida | | | | FOR NSF USE ONLY | | | |
|---|---|--------------|--------------------|---------------------------------|-------------------|-----------------------------|-------------------------------------|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR William T Tyson | | | | AWARD NO. | Proposed | Granted | |
| A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | | NSF Funded Person-months | | Funds Requested By proposer | Funds granted by NSF (if different) |
| | | CAL | ACAD | SUMR | | | |
| 1. | William T Tyson - PI | 0.00 | 0.00 | 1.50 | \$ 12,937 | \$ | |
| 2. | Kathryn M Borman - Co-PI | 0.00 | 0.90 | 0.30 | 20,910 | | |
| 3. | Bridget Cotner - Lead Qualitative Researcher | 0.00 | 1.80 | 0.60 | 14,670 | | |
| 4. | Reginald Lee - Measurement Lead | 2.40 | 0.00 | 0.00 | 10,090 | | |
| 5. | | | | | | | |
| 6. | (0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | 0.00 | 0.00 | 0.00 | 0 | | |
| 7. | (4) TOTAL SENIOR PERSONNEL (1 - 6) | 2.40 | 2.70 | 2.40 | 58,607 | | |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. | (0) POST DOCTORAL SCHOLARS | 0.00 | 0.00 | 0.00 | 0 | | |
| 2. | (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | 6.00 | 0.00 | 0.00 | 22,279 | | |
| 3. | (1) GRADUATE STUDENTS | | | | 18,829 | | |
| 4. | (0) UNDERGRADUATE STUDENTS | | | | 0 | | |
| 5. | (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | 6,520 | | |
| 6. | (1) OTHER | | | | 4,774 | | |
| TOTAL SALARIES AND WAGES (A + B) | | | | | 111,009 | | |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | 22,511 | | |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | 133,520 | | |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| TOTAL EQUIPMENT | | | | | 0 | | |
| E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | 15,416 | | |
| 2. FOREIGN | | | | | 0 | | |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. | STIPENDS \$ 4,640 | | | | | | |
| 2. | TRAVEL 0 | | | | | | |
| 3. | SUBSISTENCE 0 | | | | | | |
| 4. | OTHER 0 | | | | | | |
| TOTAL NUMBER OF PARTICIPANTS (284) TOTAL PARTICIPANT COSTS | | | | | 4,640 | | |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. MATERIALS AND SUPPLIES | | | | | 4,000 | | |
| 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | 500 | | |
| 3. CONSULTANT SERVICES | | | | | 0 | | |
| 4. COMPUTER SERVICES | | | | | 0 | | |
| 5. SUBAWARDS | | | | | 55,993 | | |
| 6. OTHER | | | | | 11,617 | | |
| TOTAL OTHER DIRECT COSTS | | | | | 72,110 | | |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | 225,686 | | |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) | | | | | | | |
| MTDC (Rate: 47.0000, Base: 158076) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | 74,296 | | |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | 299,982 | | |
| K. RESIDUAL FUNDS | | | | | 0 | | |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | | \$ 299,982 | \$ | |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PI NAME William T Tyson | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | Date Of Rate Sheet | Initials - ORG | | | |

SUMMARY PROPOSAL BUDGET

YEAR 4

| ORGANIZATION University of South Florida | | | | FOR NSF USE ONLY | | | |
|---|---|--------------|--------------------|---------------------------------|-------------------|-----------------------------|-------------------------------------|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR William T Tyson | | | | AWARD NO. | Proposed | Granted | |
| A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | | NSF Funded Person-months | | Funds Requested By proposer | Funds granted by NSF (if different) |
| | | CAL | ACAD | SUMR | | | |
| 1. | William T Tyson - PI | 0.00 | 0.00 | 1.50 | \$ 13,325 | \$ | |
| 2. | Kathryn M Borman - Co-PI | 0.00 | 0.90 | 0.30 | 21,538 | | |
| 3. | Bridget Cotner - Lead Qualitative Researcher | 0.00 | 1.80 | 0.60 | 15,110 | | |
| 4. | Reginald Lee - Measurement Lead | 2.40 | 0.00 | 0.00 | 10,393 | | |
| 5. | | | | | | | |
| 6. | (0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | 0.00 | 0.00 | 0.00 | 0 | | |
| 7. | (4) TOTAL SENIOR PERSONNEL (1 - 6) | 2.40 | 2.70 | 2.40 | 60,366 | | |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. | (0) POST DOCTORAL SCHOLARS | 0.00 | 0.00 | 0.00 | 0 | | |
| 2. | (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | 6.00 | 0.00 | 0.00 | 22,947 | | |
| 3. | (1) GRADUATE STUDENTS | | | | 19,394 | | |
| 4. | (0) UNDERGRADUATE STUDENTS | | | | 0 | | |
| 5. | (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | 6,716 | | |
| 6. | (1) OTHER | | | | 3,278 | | |
| TOTAL SALARIES AND WAGES (A + B) | | | | | 112,701 | | |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | 22,891 | | |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | 135,592 | | |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| TOTAL EQUIPMENT | | | | | 0 | | |
| E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | 15,416 | | |
| 2. FOREIGN | | | | | 0 | | |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. | STIPENDS \$ _____ | | | | 0 | | |
| 2. | TRAVEL _____ | | | | 2,176 | | |
| 3. | SUBSISTENCE _____ | | | | 0 | | |
| 4. | OTHER _____ | | | | 0 | | |
| TOTAL NUMBER OF PARTICIPANTS (8) TOTAL PARTICIPANT COSTS | | | | | 2,176 | | |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. MATERIALS AND SUPPLIES | | | | | 2,800 | | |
| 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | 500 | | |
| 3. CONSULTANT SERVICES | | | | | 0 | | |
| 4. COMPUTER SERVICES | | | | | 0 | | |
| 5. SUBAWARDS | | | | | 56,608 | | |
| 6. OTHER | | | | | 13,359 | | |
| TOTAL OTHER DIRECT COSTS | | | | | 73,267 | | |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | 226,451 | | |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) MTDC (Rate: 47.0000, Base: 156484) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | 73,547 | | |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | 299,998 | | |
| K. RESIDUAL FUNDS | | | | | 0 | | |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | | \$ 299,998 | \$ | |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PD NAME William T Tyson | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | Date Of Rate Sheet | Initials - ORG | | | |

SUMMARY PROPOSAL BUDGET

Cumulative

| ORGANIZATION University of South Florida | | | | FOR NSF USE ONLY | | | |
|---|---|--------------|--------------------|---------------------------------|-------------------|-----------------------------|-------------------------------------|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR William T Tyson | | | | AWARD NO. | Proposed | Granted | |
| A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | | NSF Funded Person-months | | Funds Requested By proposer | Funds granted by NSF (if different) |
| | | | | CAL | ACAD | SUMR | |
| 1. | William T Tyson - PI | | | 0.00 | 0.00 | 6.00 | \$ 51,016 \$ |
| 2. | Kathryn M Borman - Co-PI | | | 0.00 | 3.60 | 1.20 | 82,459 |
| 3. | Bridget Cotner - Lead Qualitative Researcher | | | 0.00 | 7.20 | 2.40 | 57,851 |
| 4. | Reginald Lee - Measurement Lead | | | 9.60 | 0.00 | 0.00 | 39,790 |
| 5. | | | | | | | |
| 6. | () OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | | | 0.00 | 0.00 | 0.00 | 0 |
| 7. | (4) TOTAL SENIOR PERSONNEL (1 - 6) | | | 9.60 | 10.80 | 9.60 | 231,116 |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. | (0) POST DOCTORAL SCHOLARS | | | 0.00 | 0.00 | 0.00 | 0 |
| 2. | (4) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | | | 24.00 | 0.00 | 0.00 | 87,856 |
| 3. | (5) GRADUATE STUDENTS | | | | | | 74,251 |
| 4. | (0) UNDERGRADUATE STUDENTS | | | | | | 0 |
| 5. | (4) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | | | 25,712 |
| 6. | (4) OTHER | | | | | | 18,732 |
| TOTAL SALARIES AND WAGES (A + B) | | | | | | | 437,667 |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | | | 89,289 |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | | | 526,956 |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| | | | | | | \$ 4,000 | |
| TOTAL EQUIPMENT | | | | | | | 4,000 |
| E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | | | 55,777 |
| 2. FOREIGN | | | | | | | 0 |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. | STIPENDS | \$ | 10,140 | | | | |
| 2. | TRAVEL | | 4,352 | | | | |
| 3. | SUBSISTENCE | | 0 | | | | |
| 4. | OTHER | | 0 | | | | |
| TOTAL NUMBER OF PARTICIPANTS (617) | | | | | | | |
| TOTAL PARTICIPANT COSTS | | | | | | | 14,492 |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. | MATERIALS AND SUPPLIES | | | | | | 14,800 |
| 2. | PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | | 2,000 |
| 3. | CONSULTANT SERVICES | | | | | | 0 |
| 4. | COMPUTER SERVICES | | | | | | 0 |
| 5. | SUBAWARDS | | | | | | 222,811 |
| 6. | OTHER | | | | | | 43,862 |
| TOTAL OTHER DIRECT COSTS | | | | | | | 283,473 |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | | | 884,698 |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | | | 312,092 |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | | | 1,196,790 |
| K. RESIDUAL FUNDS | | | | | | | 0 |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | | | | \$ 1,196,790 \$ |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PI NAME William T Tyson | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | Date Of Rate Sheet | | | Initials - ORG | |

C *ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

Budget Justification for the University of South Florida

A. Senior Key Personnel

Dr. William Tyson, Principal Investigator and a professor of Sociology at the University of South Florida (USF), will conduct quantitative analyses and oversee aspects of the project. In each year of the project, he will commit 50% of his summer time (1.5 person months) to the study.

Dr. Kathryn Borman, Co- Principal Investigator and a professor of Anthropology, at USF will oversee the collaboration among USF, FLATE and participating community colleges, high schools and industry partners and will support dissemination activities to enhance the collaboration. In each year of the project, she will commit 10% of her academic and summer time (0.9 and 0.3 person months per year).

Mr. Reginald Lee, faculty research associate at the Alliance for Applied Research in Education and Anthropology (AAREA) at USF will facilitate quantitative analyses and serves as the data manager. In each year he will commit 20% of calendar time (2.4 calendar person months) to the study.

Ms. Bridget Cotner, faculty research associate at AAREA at USF will serve as the lead for qualitative data collection, analysis and dissemination. In each year she will commit 20% of her academic and summer time (1.8 academic person months, 0.6 summer person months) to the study.

B. Other Personnel

Ms. Cassandra Workman-Whaler, research assistant at AAREA at USF will serve as the Project Manager in all four years of the project. In each year she will commit 50% of her calendar time to the study (6 person months). She will ensure compliance with the Institutional Review Board at USF, and prepare reports for the sponsor. She will also assist with qualitative data collection, analysis and dissemination. Additionally, she will communicate with ICF International regarding the evaluation.

Ms. Jaime Davis, project assistant at AAREA at USF will support the project by providing travel coordination and facilitate dissemination activities in excess above what is provided for by the department to faculty members. She will commit 20% of her calendar year (2.4 person months) to the study per year.

One graduate student researchers from the department of Anthropology at USF will support the project through analysis and dissemination. Each year, the graduate students will commit to 6.0 calendar months.

A transcriptionist will be hired to transcribe interviews for 300 hours in year one and three, 400 hours in year 2 and 200 hours in year 4 at \$15 per hour.

C. Fringe Benefits

Project personnel's salary includes a standard 3% cost of living raise each year. Fringe is calculated for academic, summer and calendar months at 19.62% for all faculty and staff. Graduate student researcher fringe is calculated at 1.2% fringe. Health insurance is calculated in the fringe for all employees in all four years (Faculty and Staff: Individual, \$5688; Family, 12,048. Graduate Students: \$1,385).

D. Equipment

One laptop computer is provided to the principal investigator to support quantitative analyses related to the project while off campus. Another laptop computer is included to support field based research and documentation.

E. Travel

Funds are allocated for two project personnel (principal and co-principal investigator) to attend the annual ATE PI meeting in Washington, DC each year of the award. The budget includes airfare, hotel, per diem (Florida per diem rate is \$36), and ground transportation to and from the meeting.

Funds are also included for three research project personnel to attend a yearly conferences (AERA, or another relevant conference) to facilitate dissemination to a wide audience including researchers, practitioners and other professionals. Airfare, hotel, per diem (Florida per diem rate is \$36), ground transportation and parking are included.

Funds are also requested for qualitative data collection. A Pilot Study will be conducted in year 1 and will consist of four researchers to three schools for a total of five days. Mileage is calculated at \$.445 per mile. Main Study will be conducted in years 2-3 and will consist of four researchers to twelve schools. Car rentals (\$50 per day), mileage (\$.445 per mile), hotel (\$100 per night) and per diem (\$36 a day for each traveler) are included.

Funds are also requested for four researchers from USF to attend the Florida Forum on Engineering Technology meeting in year 1 and 4 at a TBD location in Florida. This is to facilitate collaboration among the partners and to discuss/plan for sustainability. Car rental for two days (\$50), lodging for one night (\$100) and per diem for two days (\$36 a day) is included.

F. Participant Support Costs

Pilot study (year 1): \$250 stipends for one high school and one community college; \$20 stipends for two administrators and faculty at the high school, community college, two employees at an industry, and one FLATE employee; \$10 stipend to ten community college students. Funds will be provided to four participants from the high school and industry to attend the Florida Forum on Engineering Technology meeting at a TBD location in Florida (car rental for two days (\$50), lodging for one night (\$100) and per diem for two days (\$36 a day)) to facilitate collaboration and to discuss/plan for sustainability.

Main study (years 2-3) will provide \$250 stipends for four high schools and community colleges; \$20 stipends for two Administrators and two Faculty at four high schools, community colleges and industry companies, and four FLATE employees; \$10 stipend to 20 students at each of the community colleges. Funding will be provided to four participants from the high schools and industries to attend the Florida Forum on Engineering Technology meeting in year 4 at a TBD location in Florida (car rental for two days (\$50), lodging for one night (\$100) and per diem for two days (\$36 a day)) to facilitate collaboration.

The school and college stipends will be requested in the form of money orders while the small stipends for participants will be requested as cash.

G. Other Direct Costs

1. Materials and Supplies

We request funds to allow for shipping, postage, and freight to be made to the research group and study participants. Office supplies that will be used directly for the proposed work are requested and will consist of: notepads/pens/sticky notes for focus groups and other consumable materials to be used during the intensive fieldwork, copy paper to support data collection through the reproduction of materials (interview, focus group protocols) and informed consent forms for participants, and the reproduction of draft documents of reports, papers, and literature review articles directly related to the project. Quantitative data analysis software programs, such as SAS, SPSS, and ArcGIS, will need to be renewed during the course of the proposed project. We are also requesting funds for digital recorders to aid in qualitative research and 2 transcription machines to aid in transcribing the audio-recorded interviews into word documents that will be analyzed by the research team. All materials and supplies will be for the exclusive use of this project for the entire project period.

2. Publication Costs

Funds to support dissemination and documentation of project findings are requested.

5. Subawards

a. ICF International

ICF International will serve as our external evaluator. The ICF team consists of Mr. Thomas Horwood, who will lead the evaluation, Dr. Aikaterini Passa, who is an expert in quantitative data analysis, and Dr. Teresa Garcia Duncan, who will serve as senior advisor.

b. Florida Advanced Technological Education Center (FLATE)

FLATE will help to coordinate all educator, administrator, and students at participating colleges offering the A.S./A.A.S Engineering Technology. The FLATE team will consist of Dr. Marie Boyette, who will serve as Co-Principal Investigator and will commit 12.5% of her calendar time to the study. Dr. Marilyn Barger, executive director of FLATE, will serve as senior personnel on the project. She will facilitate the collaboration's efforts and will be providing an in-kind commitment to the study.

6. Other

Tuition Waivers: There are funds in the budget allocated for payment of graduate student tuition for three semesters (fall, spring and summer). We are requesting funds for Graduate Assistant tuition as it is USF policy that Graduate Students working on research project tuition cost be charged to the project they are working on. We have inflated the cost (3% annually) in years two - four due to yearly tuition increases.

I. Indirect Costs

The DHHS negotiated and approved on-campus rate for our university of 47% was applied to Modified Total Direct Costs. We applied our overhead rate (home and branch) to the personnel costs, and expenses. The overhead rate is not applied to the cost of tuition for the graduate student researchers and equipment.

SUMMARY PROPOSAL BUDGET

YEAR 1

| ORGANIZATION Hillsborough Community College | | | | FOR NSF USE ONLY | | | |
|---|---|--------------|--------------------|---------------------------------|-------------------|-----------------------------|-------------------------------------|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Marie Boyette | | | | AWARD NO. | Proposed | Granted | |
| | | | | | | | |
| A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | | NSF Funded Person-months | | Funds Requested By proposer | Funds granted by NSF (if different) |
| | | | | CAL | ACAD | SUMR | |
| 1. | Marie Boyette - Project Director/PI | | | 1.50 | 0.00 | 0.00 | \$ 6,616 |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6. | (0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | | | 0.00 | 0.00 | 0.00 | 0 |
| 7. | (1) TOTAL SENIOR PERSONNEL (1 - 6) | | | 1.50 | 0.00 | 0.00 | 6,616 |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. | (0) POST DOCTORAL SCHOLARS | | | 0.00 | 0.00 | 0.00 | 0 |
| 2. | (0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | | | 0.00 | 0.00 | 0.00 | 0 |
| 3. | (0) GRADUATE STUDENTS | | | | | | 0 |
| 4. | (1) UNDERGRADUATE STUDENTS | | | | | | 5,000 |
| 5. | (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | | | 0 |
| 6. | (0) OTHER | | | | | | 0 |
| TOTAL SALARIES AND WAGES (A + B) | | | | | | | 11,616 |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | | | 2,282 |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | | | 13,898 |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| TOTAL EQUIPMENT | | | | | | | 0 |
| E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | | | 1,500 |
| 2. FOREIGN | | | | | | | 0 |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. | STIPENDS | \$ | 0 | | | | |
| 2. | TRAVEL | | 0 | | | | |
| 3. | SUBSISTENCE | | 0 | | | | |
| 4. | OTHER | | 0 | | | | |
| TOTAL NUMBER OF PARTICIPANTS (0) TOTAL PARTICIPANT COSTS | | | | | | | 0 |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. | MATERIALS AND SUPPLIES | | | | | | 1,000 |
| 2. | PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | | 0 |
| 3. | CONSULTANT SERVICES | | | | | | 3,000 |
| 4. | COMPUTER SERVICES | | | | | | 0 |
| 5. | SUBAWARDS | | | | | | 0 |
| 6. | OTHER | | | | | | 0 |
| TOTAL OTHER DIRECT COSTS | | | | | | | 4,000 |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | | | 19,398 |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) Indirect (Rate: 39.0000, Base: 13898) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | | | 5,420 |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | | | 24,818 |
| K. RESIDUAL FUNDS | | | | | | | 0 |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | | | | \$ 24,818 \$ |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PI NAME Marie Boyette | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | Date Of Rate Sheet | | | Initials - ORG | |

SUMMARY PROPOSAL BUDGET

YEAR 2

| ORGANIZATION Hillsborough Community College | | | | FOR NSF USE ONLY | | | |
|---|--|--------------|--|---------------------------------|-------------------|-----------------------------|-------------------------------------|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Marie Boyette | | | | AWARD NO. | Proposed | Granted | |
| | | | | | | | |
| A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | | NSF Funded Person-months | | Funds Requested By proposer | Funds granted by NSF (if different) |
| | | | | CAL | ACAD | SUMR | |
| 1. Marie Boyette - Project Director/PI | | | | 1.50 | 0.00 | 0.00 | \$ 6,814 |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6. (0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | | | | 0.00 | 0.00 | 0.00 | 0 |
| 7. (1) TOTAL SENIOR PERSONNEL (1 - 6) | | | | 1.50 | 0.00 | 0.00 | 6,814 |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. (0) POST DOCTORAL SCHOLARS | | | | 0.00 | 0.00 | 0.00 | 0 |
| 2. (0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | | | | 0.00 | 0.00 | 0.00 | 0 |
| 3. (0) GRADUATE STUDENTS | | | | | | | 0 |
| 4. (1) UNDERGRADUATE STUDENTS | | | | | | | 5,150 |
| 5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | | | | 0 |
| 6. (0) OTHER | | | | | | | 0 |
| TOTAL SALARIES AND WAGES (A + B) | | | | | | | 11,964 |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | | | 2,351 |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | | | 14,315 |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| TOTAL EQUIPMENT | | | | | | | 0 |
| E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | | | 1,500 |
| 2. FOREIGN | | | | | | | 0 |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. STIPENDS \$ _____ 0 | | | | | | | |
| 2. TRAVEL _____ 0 | | | | | | | |
| 3. SUBSISTENCE _____ 0 | | | | | | | |
| 4. OTHER _____ 0 | | | | | | | |
| TOTAL NUMBER OF PARTICIPANTS (0) TOTAL PARTICIPANT COSTS | | | | | | | 0 |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. MATERIALS AND SUPPLIES | | | | | | | 1,000 |
| 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | | | 0 |
| 3. CONSULTANT SERVICES | | | | | | | 3,000 |
| 4. COMPUTER SERVICES | | | | | | | 0 |
| 5. SUBAWARDS | | | | | | | 0 |
| 6. OTHER | | | | | | | 0 |
| TOTAL OTHER DIRECT COSTS | | | | | | | 4,000 |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | | | 19,815 |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) Indirect (Rate: 39.0000, Base: 14315) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | | | 5,583 |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | | | 25,398 |
| K. RESIDUAL FUNDS | | | | | | | 0 |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | | | | \$ 25,398 \$ |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PD NAME Marie Boyette | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | | Date Of Rate Sheet | | Initials - ORG | |

SUMMARY PROPOSAL BUDGET

YEAR 3

| ORGANIZATION Hillsborough Community College | | | | FOR NSF USE ONLY | | | |
|--|------|--------------|--------------------|---|-------------------|---------|--|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Marie Boyette | | | | AWARD NO. | Proposed | Granted | |
| | | | | A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | |
| | CAL | ACAD | SUMR | | | | |
| 1. Marie Boyette - Project Director/PI | 1.50 | 0.00 | 0.00 | \$ | 7,019 | \$ | |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6. (0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | 0.00 | 0.00 | 0.00 | | 0 | | |
| 7. (1) TOTAL SENIOR PERSONNEL (1 - 6) | 1.50 | 0.00 | 0.00 | | 7,019 | | |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. (0) POST DOCTORAL SCHOLARS | 0.00 | 0.00 | 0.00 | | 0 | | |
| 2. (0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | 0.00 | 0.00 | 0.00 | | 0 | | |
| 3. (0) GRADUATE STUDENTS | | | | | 0 | | |
| 4. (1) UNDERGRADUATE STUDENTS | | | | | 5,305 | | |
| 5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | | 0 | | |
| 6. (0) OTHER | | | | | 0 | | |
| TOTAL SALARIES AND WAGES (A + B) | | | | | 12,324 | | |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | 2,421 | | |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | 14,745 | | |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| TOTAL EQUIPMENT | | | | | 0 | | |
| E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | 1,500 | | |
| 2. FOREIGN | | | | | 0 | | |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. STIPENDS \$ _____ | | | | | 0 | | |
| 2. TRAVEL _____ | | | | | 0 | | |
| 3. SUBSISTENCE _____ | | | | | 0 | | |
| 4. OTHER _____ | | | | | 0 | | |
| TOTAL NUMBER OF PARTICIPANTS (0) TOTAL PARTICIPANT COSTS | | | | | 0 | | |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. MATERIALS AND SUPPLIES | | | | | 1,000 | | |
| 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | 0 | | |
| 3. CONSULTANT SERVICES | | | | | 3,000 | | |
| 4. COMPUTER SERVICES | | | | | 0 | | |
| 5. SUBAWARDS | | | | | 0 | | |
| 6. OTHER | | | | | 0 | | |
| TOTAL OTHER DIRECT COSTS | | | | | 4,000 | | |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | 20,245 | | |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) Indirect (Rate: 39.0000, Base: 14745) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | 5,751 | | |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | 25,996 | | |
| K. RESIDUAL FUNDS | | | | | 0 | | |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | \$ | 25,996 | \$ | |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PI NAME Marie Boyette | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | Date Of Rate Sheet | Initials - ORG | | | |

SUMMARY PROPOSAL BUDGET

YEAR 4

| ORGANIZATION Hillsborough Community College | | | | FOR NSF USE ONLY | | | |
|---|--|--------------|--|---------------------------------|-------------------|-----------------------------|-------------------------------------|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Marie Boyette | | | | AWARD NO. | Proposed | Granted | |
| | | | | | | | |
| A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | | NSF Funded Person-months | | Funds Requested By proposer | Funds granted by NSF (if different) |
| | | | | CAL | ACAD | SUMR | |
| 1. Marie Boyette - Project Director/PI | | | | 1.50 | 0.00 | 0.00 | \$ 7,229 |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6. (0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | | | | 0.00 | 0.00 | 0.00 | 0 |
| 7. (1) TOTAL SENIOR PERSONNEL (1 - 6) | | | | 1.50 | 0.00 | 0.00 | 7,229 |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. (0) POST DOCTORAL SCHOLARS | | | | 0.00 | 0.00 | 0.00 | 0 |
| 2. (0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | | | | 0.00 | 0.00 | 0.00 | 0 |
| 3. (0) GRADUATE STUDENTS | | | | | | | 0 |
| 4. (1) UNDERGRADUATE STUDENTS | | | | | | | 5,464 |
| 5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | | | | 0 |
| 6. (0) OTHER | | | | | | | 0 |
| TOTAL SALARIES AND WAGES (A + B) | | | | | | | 12,693 |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | | | 2,494 |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | | | 15,187 |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| TOTAL EQUIPMENT | | | | | | | 0 |
| E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | | | 1,500 |
| 2. FOREIGN | | | | | | | 0 |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. STIPENDS \$ _____ | | | | 0 | | | |
| 2. TRAVEL _____ | | | | 0 | | | |
| 3. SUBSISTENCE _____ | | | | 0 | | | |
| 4. OTHER _____ | | | | 0 | | | |
| TOTAL NUMBER OF PARTICIPANTS (0) TOTAL PARTICIPANT COSTS | | | | | | | 0 |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. MATERIALS AND SUPPLIES | | | | | | | 1,000 |
| 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | | | 0 |
| 3. CONSULTANT SERVICES | | | | | | | 3,000 |
| 4. COMPUTER SERVICES | | | | | | | 0 |
| 5. SUBAWARDS | | | | | | | 0 |
| 6. OTHER | | | | | | | 0 |
| TOTAL OTHER DIRECT COSTS | | | | | | | 4,000 |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | | | 20,687 |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) Indirect (Rate: 39.0000, Base: 15187) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | | | 5,923 |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | | | 26,610 |
| K. RESIDUAL FUNDS | | | | | | | 0 |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | | | | \$ 26,610 \$ |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PI NAME Marie Boyette | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | | Date Of Rate Sheet | | Initials - ORG | |

SUMMARY PROPOSAL BUDGET Cumulative

| ORGANIZATION Hillsborough Community College | | | | FOR NSF USE ONLY | | | |
|---|--|--------------|--|---------------------------------|-------------------|-----------------------------|-------------------------------------|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Marie Boyette | | | | AWARD NO. | Proposed | Granted | |
| | | | | | | | |
| A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | | NSF Funded Person-months | | Funds Requested By proposer | Funds granted by NSF (if different) |
| | | | | CAL | ACAD | SUMR | |
| 1. Marie Boyette - Project Director/PI | | | | 6.00 | 0.00 | 0.00 | \$ 27,678 |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6. () OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | | | | 0.00 | 0.00 | 0.00 | 0 |
| 7. (1) TOTAL SENIOR PERSONNEL (1 - 6) | | | | 6.00 | 0.00 | 0.00 | 27,678 |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. (0) POST DOCTORAL SCHOLARS | | | | 0.00 | 0.00 | 0.00 | 0 |
| 2. (0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | | | | 0.00 | 0.00 | 0.00 | 0 |
| 3. (0) GRADUATE STUDENTS | | | | | | | 0 |
| 4. (4) UNDERGRADUATE STUDENTS | | | | | | | 20,919 |
| 5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | | | | 0 |
| 6. (0) OTHER | | | | | | | 0 |
| TOTAL SALARIES AND WAGES (A + B) | | | | | | | 48,597 |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | | | 9,548 |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | | | 58,145 |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| TOTAL EQUIPMENT | | | | | | | 0 |
| E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | | | 6,000 |
| 2. FOREIGN | | | | | | | 0 |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. STIPENDS \$ _____ 0 | | | | | | | |
| 2. TRAVEL _____ 0 | | | | | | | |
| 3. SUBSISTENCE _____ 0 | | | | | | | |
| 4. OTHER _____ 0 | | | | | | | |
| TOTAL NUMBER OF PARTICIPANTS (0) TOTAL PARTICIPANT COSTS | | | | | | | 0 |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. MATERIALS AND SUPPLIES | | | | | | | 4,000 |
| 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | | | 0 |
| 3. CONSULTANT SERVICES | | | | | | | 12,000 |
| 4. COMPUTER SERVICES | | | | | | | 0 |
| 5. SUBAWARDS | | | | | | | 0 |
| 6. OTHER | | | | | | | 0 |
| TOTAL OTHER DIRECT COSTS | | | | | | | 16,000 |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | | | 80,145 |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | | | 22,677 |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | | | 102,822 |
| K. RESIDUAL FUNDS | | | | | | | 0 |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | | | | \$ 102,822 \$ |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PI NAME Marie Boyette | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | | Date Of Rate Sheet | | Initials - ORG | |

C *ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

Budget Narrative

Florida Advanced Technological Education Center (FLATE)

A. Senior Key Personnel

Dr. Marie Boyette, will serve as Co-Principal Investigator and will commit 12.5% of her calendar time to all four years of the study. She will serve as the liaison to the University of South Florida and will help to coordinate all educator, administrator, and students at participating colleges offering the A.S./A.A.S Engineering Technology and/or its related college certificates.

Dr. Marilyn Barger, executive director of FLATE, will serve as senior personnel on the project. She will facilitate the collaboration's efforts and will be providing an in-kind commitment for all four years to the study.

B. Other Personnel

One undergraduate student researcher (\$5000) for all four years to assist with coordination and planning of meetings among other tasks.

C. Fringe Benefits

Project personnel's salary includes a standard 3% cost of living raise each year. Fringe is calculated for calendar months at 17.5% for all faculty and staff. Undergraduate student researcher fringe is calculated at 10% fringe.

E. Travel

There are funds allocated for two project personnel to attend the annual ATE PI meeting in Washington, DC and/or other dissemination conferences each of the four years of the award. The budget includes airfare, hotel, per diem (Florida per diem rate is \$36), and ground transportation to and from the meeting.

G. Other Direct Costs

1. Materials and Supplies

We request funds to allow for shipping, postage, and freight to be made to the partner members. Office supplies, consumables to support the project's activities are also included, such as materials for the annual meeting and reproduction of draft documents. All materials and supplies will be for the exclusive use of this project for the entire project period.

3. Consultant Services

Consultant Services will consist of web and graphic services to ensure project related activities and products are kept up-to-date.

I. Indirect Costs

We applied our overhead rate of 39% (home and branch) to the salary and fringe benefits. The overhead rate is not applied to the cost of travel, materials and supplies and consultant services.

SUMMARY PROPOSAL BUDGET

YEAR 1

| ORGANIZATION ICF Incorporated, LLC | | | | FOR NSF USE ONLY | | | |
|---|--|--------------|--|---------------------------------|-------------------|-----------------------------|-------------------------------------|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Thomas Horwood | | | | AWARD NO. | | | |
| | | | | Proposed | Granted | | |
| A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | | NSF Funded Person-months | | Funds Requested By proposer | Funds granted by NSF (if different) |
| | | | | CAL | ACAD | SUMR | |
| 1. Thomas Horwood - Project Director | | | | 0.90 | 0.00 | 0.00 | \$ 6,430 |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6. (0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | | | | 0.00 | 0.00 | 0.00 | 0 |
| 7. (1) TOTAL SENIOR PERSONNEL (1 - 6) | | | | 0.90 | 0.00 | 0.00 | 6,430 |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. (0) POST DOCTORAL SCHOLARS | | | | 0.00 | 0.00 | 0.00 | 0 |
| 2. (2) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | | | | 0.30 | 0.00 | 0.00 | 2,618 |
| 3. (0) GRADUATE STUDENTS | | | | | | | 0 |
| 4. (0) UNDERGRADUATE STUDENTS | | | | | | | 0 |
| 5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | | | | 0 |
| 6. (0) OTHER | | | | | | | 0 |
| TOTAL SALARIES AND WAGES (A + B) | | | | | | | 9,048 |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | | | 3,085 |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | | | 12,133 |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| TOTAL EQUIPMENT | | | | | | | 0 |
| E. TRAVEL | | | | | | | 3,105 |
| 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | | | 3,105 |
| 2. FOREIGN | | | | | | | 0 |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. STIPENDS \$ _____ | | | | 0 | | | |
| 2. TRAVEL _____ | | | | 0 | | | |
| 3. SUBSISTENCE _____ | | | | 0 | | | |
| 4. OTHER _____ | | | | 0 | | | |
| TOTAL NUMBER OF PARTICIPANTS (0) | | | | | | | |
| TOTAL PARTICIPANT COSTS | | | | | | | 0 |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. MATERIALS AND SUPPLIES | | | | | | | 50 |
| 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | | | 0 |
| 3. CONSULTANT SERVICES | | | | | | | 0 |
| 4. COMPUTER SERVICES | | | | | | | 0 |
| 5. SUBAWARDS | | | | | | | 0 |
| 6. OTHER | | | | | | | 10 |
| TOTAL OTHER DIRECT COSTS | | | | | | | 60 |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | | | 15,298 |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) | | | | | | | |
| Indirect Cost (Rate: 96.0700, Base: 15300) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | | | 14,699 |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | | | 29,997 |
| K. RESIDUAL FUNDS | | | | | | | 0 |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | | | | \$ 29,997 \$ |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PI NAME Thomas Horwood | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | | Date Of Rate Sheet | | Initials - ORG | |

SUMMARY PROPOSAL BUDGET

YEAR **2**

| ORGANIZATION ICF Incorporated, LLC | | | | FOR NSF USE ONLY | | | |
|---|------|--------------|--------------------|---------------------------------|-------------------|-----------------------------|-------------------------------------|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Thomas Horwood | | | | Proposed | Granted | | |
| | | | | AWARD NO. | | | |
| A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | | NSF Funded Person-months | | Funds Requested By proposer | Funds granted by NSF (if different) |
| | CAL | ACAD | SUMR | | | | |
| 1. Thomas Horwood - Project Director | 0.90 | 0.00 | 0.00 | \$ | 6,430 | \$ | |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6. (0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | 0.00 | 0.00 | 0.00 | | 0 | | |
| 7. (1) TOTAL SENIOR PERSONNEL (1 - 6) | 0.90 | 0.00 | 0.00 | | 6,430 | | |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. (0) POST DOCTORAL SCHOLARS | 0.00 | 0.00 | 0.00 | | 0 | | |
| 2. (2) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | 0.30 | 0.00 | 0.00 | | 2,618 | | |
| 3. (0) GRADUATE STUDENTS | | | | | 0 | | |
| 4. (0) UNDERGRADUATE STUDENTS | | | | | 0 | | |
| 5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | | 0 | | |
| 6. (0) OTHER | | | | | 0 | | |
| TOTAL SALARIES AND WAGES (A + B) | | | | | 9,048 | | |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | 3,085 | | |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | 12,133 | | |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| TOTAL EQUIPMENT | | | | | 0 | | |
| E. TRAVEL | | | | | 3,105 | | |
| 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | | | |
| 2. FOREIGN | | | | | 0 | | |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. STIPENDS | \$ | | 0 | | | | |
| 2. TRAVEL | | | 0 | | | | |
| 3. SUBSISTENCE | | | 0 | | | | |
| 4. OTHER | | | 0 | | | | |
| TOTAL NUMBER OF PARTICIPANTS (0) | | | | TOTAL PARTICIPANT COSTS | 0 | | |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. MATERIALS AND SUPPLIES | | | | | 50 | | |
| 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | 0 | | |
| 3. CONSULTANT SERVICES | | | | | 0 | | |
| 4. COMPUTER SERVICES | | | | | 0 | | |
| 5. SUBAWARDS | | | | | 0 | | |
| 6. OTHER | | | | | 10 | | |
| TOTAL OTHER DIRECT COSTS | | | | | 60 | | |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | 15,298 | | |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) Indirect Cost (Rate: 96.0700, Base: 15300) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | 14,699 | | |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | 29,997 | | |
| K. RESIDUAL FUNDS | | | | | 0 | | |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | | \$ 29,997 | \$ | |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PI NAME Thomas Horwood | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | Date Of Rate Sheet | Initials - ORG | | | |

SUMMARY PROPOSAL BUDGET

YEAR 3

| ORGANIZATION ICF Incorporated, LLC | | | | FOR NSF USE ONLY | | | |
|---|--|--------------|--|---------------------------------|-------------------|-----------------------------|-------------------------------------|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Thomas Horwood | | | | Proposed | Granted | | |
| | | | | AWARD NO. | | | |
| A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | | NSF Funded Person-months | | Funds Requested By proposer | Funds granted by NSF (if different) |
| | | | | CAL | ACAD | SUMR | |
| 1. Thomas Horwood - Project Director | | | | 0.90 | 0.00 | 0.00 | \$ 6,430 |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6. (0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | | | | 0.00 | 0.00 | 0.00 | 0 |
| 7. (1) TOTAL SENIOR PERSONNEL (1 - 6) | | | | 0.90 | 0.00 | 0.00 | 6,430 |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. (0) POST DOCTORAL SCHOLARS | | | | 0.00 | 0.00 | 0.00 | 0 |
| 2. (2) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | | | | 0.30 | 0.00 | 0.00 | 2,618 |
| 3. (0) GRADUATE STUDENTS | | | | | | | 0 |
| 4. (0) UNDERGRADUATE STUDENTS | | | | | | | 0 |
| 5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | | | | 0 |
| 6. (0) OTHER | | | | | | | 0 |
| TOTAL SALARIES AND WAGES (A + B) | | | | | | | 9,048 |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | | | 3,085 |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | | | 12,133 |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| TOTAL EQUIPMENT | | | | | | | 0 |
| E. TRAVEL | | | | | | | 3,105 |
| 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | | | 3,105 |
| 2. FOREIGN | | | | | | | 0 |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. STIPENDS \$ _____ | | | | 0 | | | |
| 2. TRAVEL _____ | | | | 0 | | | |
| 3. SUBSISTENCE _____ | | | | 0 | | | |
| 4. OTHER _____ | | | | 0 | | | |
| TOTAL NUMBER OF PARTICIPANTS (0) | | | | | | | |
| TOTAL PARTICIPANT COSTS | | | | | | | 0 |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. MATERIALS AND SUPPLIES | | | | | | | 50 |
| 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | | | 0 |
| 3. CONSULTANT SERVICES | | | | | | | 0 |
| 4. COMPUTER SERVICES | | | | | | | 0 |
| 5. SUBAWARDS | | | | | | | 0 |
| 6. OTHER | | | | | | | 10 |
| TOTAL OTHER DIRECT COSTS | | | | | | | 60 |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | | | 15,298 |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) | | | | | | | |
| Indirect Cost (Rate: 96.0700, Base: 15300) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | | | 14,699 |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | | | 29,997 |
| K. RESIDUAL FUNDS | | | | | | | 0 |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | | | | \$ 29,997 \$ |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PI NAME Thomas Horwood | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | | Date Of Rate Sheet | | Initials - ORG | |

SUMMARY PROPOSAL BUDGET

YEAR 4

| ORGANIZATION ICF Incorporated, LLC | | | | FOR NSF USE ONLY | | | |
|---|--|--------------|--|---|-------------------|----------------|---------------------|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Thomas Horwood | | | | AWARD NO. | Proposed | Granted | |
| | | | | A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | |
| | | | | CAL | ACAD | SUMR | |
| 1. Thomas Horwood - Project Director | | | | 0.90 | 0.00 | 0.00 | \$ 6,430 |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6. (0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | | | | 0.00 | 0.00 | 0.00 | 0 |
| 7. (1) TOTAL SENIOR PERSONNEL (1 - 6) | | | | 0.90 | 0.00 | 0.00 | 6,430 |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. (0) POST DOCTORAL SCHOLARS | | | | 0.00 | 0.00 | 0.00 | 0 |
| 2. (2) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | | | | 0.30 | 0.00 | 0.00 | 2,618 |
| 3. (0) GRADUATE STUDENTS | | | | | | | 0 |
| 4. (0) UNDERGRADUATE STUDENTS | | | | | | | 0 |
| 5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | | | | 0 |
| 6. (0) OTHER | | | | | | | 0 |
| TOTAL SALARIES AND WAGES (A + B) | | | | | | | 9,048 |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | | | 3,086 |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | | | 12,134 |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| TOTAL EQUIPMENT | | | | | | | 0 |
| E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | | | 3,105 |
| 2. FOREIGN | | | | | | | 0 |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. STIPENDS \$ _____ 0 | | | | | | | |
| 2. TRAVEL _____ 0 | | | | | | | |
| 3. SUBSISTENCE _____ 0 | | | | | | | |
| 4. OTHER _____ 0 | | | | | | | |
| TOTAL NUMBER OF PARTICIPANTS (0) TOTAL PARTICIPANT COSTS | | | | | | | 0 |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. MATERIALS AND SUPPLIES | | | | | | | 50 |
| 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | | | 0 |
| 3. CONSULTANT SERVICES | | | | | | | 0 |
| 4. COMPUTER SERVICES | | | | | | | 0 |
| 5. SUBAWARDS | | | | | | | 0 |
| 6. OTHER | | | | | | | 10 |
| TOTAL OTHER DIRECT COSTS | | | | | | | 60 |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | | | 15,299 |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) Indirect Cost (Rate: 96.0700, Base: 15300) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | | | 14,699 |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | | | 29,998 |
| K. RESIDUAL FUNDS | | | | | | | 0 |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | | | | \$ 29,998 \$ |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PI NAME Thomas Horwood | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | | Date Of Rate Sheet | | Initials - ORG | |

SUMMARY PROPOSAL BUDGET Cumulative

| ORGANIZATION ICF Incorporated, LLC | | | | FOR NSF USE ONLY | | | |
|---|--|--------------|--------------------|---|-------------------|---------|----------------------|
| | | | | PROPOSAL NO. | DURATION (months) | | |
| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Thomas Horwood | | | | AWARD NO. | Proposed | Granted | |
| | | | | A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) | | | |
| | | | | CAL | ACAD | SUMR | |
| 1. Thomas Horwood - Project Director | | | | 3.60 | 0.00 | 0.00 | \$ 25,720 |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6. () OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) | | | | 0.00 | 0.00 | 0.00 | 0 |
| 7. (1) TOTAL SENIOR PERSONNEL (1 - 6) | | | | 3.60 | 0.00 | 0.00 | 25,720 |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) | | | | | | | |
| 1. (0) POST DOCTORAL SCHOLARS | | | | 0.00 | 0.00 | 0.00 | 0 |
| 2. (8) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) | | | | 1.20 | 0.00 | 0.00 | 10,472 |
| 3. (0) GRADUATE STUDENTS | | | | | | | 0 |
| 4. (0) UNDERGRADUATE STUDENTS | | | | | | | 0 |
| 5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) | | | | | | | 0 |
| 6. (0) OTHER | | | | | | | 0 |
| TOTAL SALARIES AND WAGES (A + B) | | | | | | | 36,192 |
| C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) | | | | | | | 12,341 |
| TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C) | | | | | | | 48,533 |
| D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.) | | | | | | | |
| TOTAL EQUIPMENT | | | | | | | 0 |
| E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS) | | | | | | | 12,420 |
| 2. FOREIGN | | | | | | | 0 |
| F. PARTICIPANT SUPPORT COSTS | | | | | | | |
| 1. STIPENDS \$ _____ 0 | | | | | | | |
| 2. TRAVEL _____ 0 | | | | | | | |
| 3. SUBSISTENCE _____ 0 | | | | | | | |
| 4. OTHER _____ 0 | | | | | | | |
| TOTAL NUMBER OF PARTICIPANTS (0) TOTAL PARTICIPANT COSTS | | | | | | | 0 |
| G. OTHER DIRECT COSTS | | | | | | | |
| 1. MATERIALS AND SUPPLIES | | | | | | | 200 |
| 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION | | | | | | | 0 |
| 3. CONSULTANT SERVICES | | | | | | | 0 |
| 4. COMPUTER SERVICES | | | | | | | 0 |
| 5. SUBAWARDS | | | | | | | 0 |
| 6. OTHER | | | | | | | 40 |
| TOTAL OTHER DIRECT COSTS | | | | | | | 240 |
| H. TOTAL DIRECT COSTS (A THROUGH G) | | | | | | | 61,193 |
| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) | | | | | | | |
| TOTAL INDIRECT COSTS (F&A) | | | | | | | 58,796 |
| J. TOTAL DIRECT AND INDIRECT COSTS (H + I) | | | | | | | 119,989 |
| K. RESIDUAL FUNDS | | | | | | | 0 |
| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | | | | | | | \$ 119,989 \$ |
| M. COST SHARING PROPOSED LEVEL \$ 0 | | | | AGREED LEVEL IF DIFFERENT \$ | | | |
| PI/PI NAME Thomas Horwood | | | | FOR NSF USE ONLY | | | |
| ORG. REP. NAME* Lynette Kos | | | | INDIRECT COST RATE VERIFICATION | | | |
| | | Date Checked | Date Of Rate Sheet | Initials - ORG | | | |

C *ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

BASIS OF ESTIMATE

Direct Labor Rates

ICF Incorporated, L.L.C. (an ICF International company hereafter referred to as “ICF”) proposes category rates based on actual labor rate information dated September 1, 2010.

Period of Performance

The proposed period of performance is as follows:

| | |
|---------------|-------------------------------------|
| Base Year | September 1, 2011 – August 31, 2012 |
| Option Year 1 | September 1, 2012 – August 31, 2013 |
| Option Year 2 | September 1, 2013 – August 31, 2014 |
| Option Year 3 | September 1, 2014 – August 31, 2015 |

Allocation of Hours

The estimated hours are for one base year. ICF’s estimate is based on experience in performing similar work for other clients and reflects the results of the detailed analysis of the different activities to be performed under each task and the total estimated number of deliverables (including drafts and final versions) that will be required. ICF’s distribution of hours by labor categories reflects the staffing mix that ICF believes will be most cost-effective in completing this work.

Allocation of Other Direct Costs

It is ICF’s disclosed accounting practice to recover contract specific other direct costs as a direct charge to any specific contract. Such other direct cost elements include but are not limited to courier/messenger, computer related, material/supplies, postage/express mail, printing, reproduction, telephone, relocation, and CAD. Other direct costs will be invoiced at actual cost plus applicable G&A.

Allocations of Travel Costs

It is ICF’s disclosed accounting practice to recover contract specific travel costs as a direct charge to any specific contract. Such travel cost elements include but are not limited to airfare, lodging, meals & incidentals per diem, rental car/local transit, mileage, parking, internet connection charges, and booking fees. Travel costs will be incurred with prior client authorization. Travel costs will be invoiced at actual cost plus applicable G&A.

Assumptions

September 1, 2011 – August 31, 2012: 192 labor hours (144 Horwood; 40 Passa, 8 Duncan); three overnight trips to Tampa; minimal telephone and reproduction ODCs

September 1, 2012 – August 31, 2013: 192 labor hours (144 Horwood; 40 Passa, 8 Duncan); three overnight trips to Tampa; minimal telephone and reproduction ODCs

September 1, 2013 – August 31, 2014: 192 labor hours (144 Horwood; 40 Passa, 8 Duncan); three overnight trips to Tampa; minimal telephone and reproduction ODCs

September 1, 2014 – August 31, 2015: 192 labor hours (144 Horwood; 40 Passa, 8 Duncan); three overnight trips to Tampa; minimal telephone and reproduction ODCs

Use or disclosure of data contained on this sheet is subject to the restrictions on the title page of this proposal.
ICF Proposal 2010848



Proposed Invoicing Procedure

ICF has prepared this submission based on a Cost Reimbursable contract. Invoices will be submitted monthly during the contract period for actual labor hours and expenses.

Payment in full is due within thirty (30) days of the invoice date.

Additional Information

- DUNS Number – 07-264-8579
- CAGE Code – 5M571
- Federal Tax Identification Number – 52-0893615
- Size Status – Large Business
- ICF has prepared this submission based on a Cost Reimbursable contract

ICF's price proposal will remain in effect for a period of ninety (90) days from the date of submission. ICF retains the right to review its submission and to extend its offer or to revise its proposal based on the facts known at the end of the 90-day period.

Cognizant Government Audit Agency

Defense Contract Audit Agency
Fairfax Branch Office
Ms. Lynne Newitt
171 Elden Street, Suite 315
Herndon, VA 20170-4810
703-377-4657
lynne.newitt@dcaa.mil

Remittance Address

Electronic Funds Transfer Address :

Account Name: ICF Consulting Group, Inc.
Fairfax, Virginia
Bank: Citizens Bank
1 Citizens Drive
Riverside, RI 02915
ABA Number: 036076150
Account Name: ICF Consulting Group, Inc.
Account Number: 6203219502

Lockbox Address:

ICF Incorporated, L.L.C.
P.O. Box 7777 – W510501
Philadelphia, PA 19175-0501
OR

Current and Pending Support

(See GPG Section II.C.2.h for guidance on information to include on this form.)

| | |
|---|---|
| The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal. | |
| Investigator: Kathryn Borman | Other agencies (including NSF) to which this proposal has been/will be submitted. |
| Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Evaluation of the Center for Inquiry in Science Teaching and Learning Source of Support: Washington University at St. Louis Total Award Amount: \$ 354,679 Total Award Period Covered: 06/01/05 - 12/31/10 Location of Project: University of South Florida Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.09 Sumr: 0.03 | |
| Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: On-Track for STEM Careers: Access to Rigorous and Relevant STEM Courses in Florida's High Schools Source of Support: NSF REESE Total Award Amount: \$ 999,989 Total Award Period Covered: 08/01/08 - 07/31/11 Location of Project: University of South Florida Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 1.80 Sumr: 0.45 | |
| Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Florida Voluntary Public School Choice Evaluation Source of Support: USDOE Total Award Amount: \$ 750,000 Total Award Period Covered: 10/01/07 - 09/30/12 Location of Project: University of South Florida Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.09 Sumr: 0.03 | |
| Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Dual Enrollment in Florida: Who is Served and Who Benefits Source of Support: Spencer Foundation Total Award Amount: \$ 128,676 Total Award Period Covered: 08/01/08 - 07/31/11 Location of Project: University of South Florida Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 1.32 Sumr: 0.45 | |
| Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Expanding Opportunities for Innovative and Technology Rich Stem Experiences through Florida's High School Career Academies Source of Support: NSF ITEST Total Award Amount: \$ 1,499,911 Total Award Period Covered: 10/01/08 - 09/30/11 Location of Project: University of South Florida Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 2.70 Summ: 0.60 | |
| *If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period. | |

Current and Pending Support

(See GPG Section II.C.2.h for guidance on information to include on this form.)

| | |
|--|---|
| The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal. | |
| Investigator: Kathryn Borman | Other agencies (including NSF) to which this proposal has been/will be submitted. |
| <p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Florida Charter Schools Grant Evaluation</p> <p>Source of Support: Florida Department of Education</p> <p>Total Award Amount: \$ 750,000 Total Award Period Covered: 10/01/09 - 09/30/11</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.45 Sumr: 0.15</p> | |
| <p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Alliance for the Advancement of Florida's Academic Women in Chemistry and Engineering</p> <p>Source of Support: NSF Advanced PAID</p> <p>Total Award Amount: \$ 221,644 Total Award Period Covered: 08/01/09 - 07/31/12</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.27 Sumr: 0.09</p> | |
| <p>Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: New, GK-12, gSUCCESS: Graduate Students Undertaking Cutting-edge, Community Engaged Sustainability Science ? An Interdisciplinary STEM GK-12 Program</p> <p>Source of Support: NSF</p> <p>Total Award Amount: \$ 2,906,413 Total Award Period Covered: 01/01/11 - 12/31/15</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 1.35 Sumr: 0.45</p> | |
| <p>Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Career Academy Participation in Florida: Who Participates in Which Types of Career Academies and to What End?</p> <p>Source of Support: USDOE</p> <p>Total Award Amount: \$ 612,456 Total Award Period Covered: 03/01/11 - 02/28/13</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.90 Sumr: 0.30</p> | |
| <p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Dual Enrollment: A Pathway to Postsecondary Education and Careers for Students with Disabilities?</p> <p>Source of Support: USDOE</p> <p>Total Award Amount: \$ 1,067,054 Total Award Period Covered: 03/01/11 - 02/28/14</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 1.35 Summ: 0.75</p> | |
| *If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period. | |

Current and Pending Support

(See GPG Section II.C.2.h for guidance on information to include on this form.)

| | |
|--|---|
| The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal. | |
| Investigator: Kathryn Borman | Other agencies (including NSF) to which this proposal has been/will be submitted. |
| Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Successful Academic and Employment Pathways in Advanced Technologies | |
| Source of Support: NSF Total Award Amount: \$ 1,196,790 Total Award Period Covered: 08/01/11 - 07/31/15 Location of Project: University of South Florida Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.90 Sumr: 0.30 | |
| Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: | |
| Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project. Cal: Acad: Sumr: | |
| Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: | |
| Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project. Cal: Acad: Sumr: | |
| Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: | |
| Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project. Cal: Acad: Sumr: | |
| Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: | |
| Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project. Cal: Acad: Summ: | |

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

Current and Pending Support

(See GPG Section II.C.2.h for guidance on information to include on this form.)

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|---|---|
| The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal. | |
| Investigator: Bridget Cotner | Other agencies (including NSF) to which this proposal has been/will be submitted. |
| <p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Expanding Opportunities for Innovative and Technology Rich Stem Experiences through Florida's High School Career Academies, National Science Foundation</p> <p>Source of Support: NSF ITEST</p> <p>Total Award Amount: \$ 1,499,911 Total Award Period Covered: 10/01/08 - 09/30/11</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 5.40 Sumr: 1.80</p> | |
| <p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Dual Enrollment in Florida: Who is Served and who Benefits</p> <p>Source of Support: Spencer Foundation</p> <p>Total Award Amount: \$ 128,676 Total Award Period Covered: 08/01/08 - 07/31/11</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.90 Sumr: 0.30</p> | |
| <p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: On-Track for STEM Careers: Access to Rigorous and Relevant STEM Courses in Florida's High Schools</p> <p>Source of Support: NSF REESE</p> <p>Total Award Amount: \$ 999,989 Total Award Period Covered: 08/01/08 - 07/31/11</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 1.44 Sumr: 0.48</p> | |
| <p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Florida Voluntary Public School Choice Evaluation</p> <p>Source of Support: USDOE</p> <p>Total Award Amount: \$ 750,000 Total Award Period Covered: 10/01/07 - 09/30/12</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.18 Sumr: 0.06</p> | |
| <p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Florida Charter Schools Grant Evaluation</p> <p>Source of Support: USDOE</p> <p>Total Award Amount: \$ 750,000 Total Award Period Covered: 10/01/09 - 09/30/11</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.90 Summ: 0.30</p> | |
| *If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period. | |

Current and Pending Support

(See GPG Section II.C.2.h for guidance on information to include on this form.)

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| The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal. | |
| Investigator: Thomas Horwood | Other agencies (including NSF) to which this proposal has been/will be submitted. |
| Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Evaluation of the Texas High School Success Pilot Program (HSSPP) | |
| Source of Support: Texas Education Agency Total Award Amount: \$ 1,499,683 Total Award Period Covered: 09/28/08 - 04/01/11 Location of Project: ICF Person-Months Per Year Committed to the Project. Cal:2.40 Acad:0.00 Sumr: 0.00 | |
| Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Texas Adolescent Literacy Academies (TALA) | |
| Source of Support: Texas Education Agency Total Award Amount: \$ 1,247,669 Total Award Period Covered: 02/11/08 - 03/07/11 Location of Project: ICF Person-Months Per Year Committed to the Project. Cal:2.40 Acad:0.00 Sumr: 0.00 | |
| Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: TEA ? Best Practices Clearinghouse | |
| Source of Support: Texas Education Agency Total Award Amount: \$ 360,211 Total Award Period Covered: 11/16/09 - 09/30/11 Location of Project: ICF Person-Months Per Year Committed to the Project. Cal:1.20 Acad:0.00 Sumr: 0.00 | |
| Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Texas Rider 42 PD Study | |
| Source of Support: Texas Education Agency Total Award Amount: \$ 221,475 Total Award Period Covered: 02/17/10 - 12/31/10 Location of Project: ICF Person-Months Per Year Committed to the Project. Cal:1.80 Acad:0.00 Sumr: 0.00 | |
| Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: TX Virtual School Network Evaluation | |
| Source of Support: Texas Education Agency Total Award Amount: \$ 175,000 Total Award Period Covered: 04/26/10 - 08/31/11 Location of Project: ICF Person-Months Per Year Committed to the Project. Cal:0.60 Acad:0.00 Summ:0.00 | |
| *If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period. | |

Current and Pending Support

(See GPG Section II.C.2.h for guidance on information to include on this form.)

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| The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal. | |
| Investigator: Thomas Horwood | Other agencies (including NSF) to which this proposal has been/will be submitted. |
| Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Successful Academic and Employment Pathways in Advanced Technologies Source of Support: NSF Total Award Amount: \$ 1,196,790 Total Award Period Covered: 08/01/10 - 07/30/15 Location of Project: ICF Person-Months Per Year Committed to the Project. Cal:0.90 Acad: 0.00 Sumr: 0.00 | |
| Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project. Cal: Acad: Sumr: | |
| Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project. Cal: Acad: Sumr: | |
| Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project. Cal: Acad: Sumr: | |
| Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project. Cal: Acad: Summ: | |

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

Current and Pending Support

(See GPG Section II.C.2.h for guidance on information to include on this form.)

| | |
|--|---|
| The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal. | |
| Investigator: Reginald Lee | Other agencies (including NSF) to which this proposal has been/will be submitted. |
| <p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Expanding Opportunities for Innovative and Technology Rich Stem Experiences through Florida's High School Career Academies, National Science Foundation</p> <p>Source of Support: NSF ITEEST</p> <p>Total Award Amount: \$ 1,499,911 Total Award Period Covered: 10/01/08 - 09/30/11</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:2.64 Acad: 0.00 Sumr: 0.00</p> | |
| <p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Dual Enrollment in Florida: Who is Served and Who Benefits</p> <p>Source of Support: Spencer Foundation</p> <p>Total Award Amount: \$ 128,676 Total Award Period Covered: 08/01/08 - 07/31/11</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:1.20 Acad: 0.00 Sumr: 0.00</p> | |
| <p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Evaluation of the Center for Inquiry in Science Teaching and Learning</p> <p>Source of Support: Washington University at St. Louis</p> <p>Total Award Amount: \$ 354,679 Total Award Period Covered: 06/01/05 - 12/31/10</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:0.12 Acad: 0.00 Sumr: 0.00</p> | |
| <p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: On-Track for STEM Careers: Access to Rigorous and Relevant STEM Courses in Florida's High Schools</p> <p>Source of Support: NSF REESE</p> <p>Total Award Amount: \$ 999,989 Total Award Period Covered: 08/01/08 - 07/31/11</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:1.80 Acad: 0.00 Sumr: 0.00</p> | |
| <p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Florida Voluntary Public School Choice Evaluation</p> <p>Source of Support: USDOE</p> <p>Total Award Amount: \$ 750,000 Total Award Period Covered: 10/01/07 - 09/30/12</p> <p>Location of Project: University of South Florida</p> <p>Person-Months Per Year Committed to the Project. Cal:3.00 Acad: 0.00 Summ: 0.00</p> | |
| *If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period. | |

FACILITIES, EQUIPMENT & OTHER RESOURCES

Office:

Alliance for Applied Research in Education and Anthropology (AAREA) is housed in a suite of 13 offices with a conference room and photocopy room. AAREA was formed by Dr. Kathryn Borman in 2005 and is a part of the Department of Anthropology in the College of Arts and Sciences at the University of South Florida.

Florida Advanced Technological Education Center (FLATE) is located in 2000 square feet office suite on the Brandon Campus of Hillsborough Community College in Tampa, Florida approximately 8 miles from the AAREA offices at USF. Each of 5 offices has a computer and monitor and access to networked printers in a common work room which contains a copier and fax machine. FLATE also has access to telephone service with teleconference capabilities. Three conference rooms on the same floor are available for FLATE's use. FLATE has one full time administrative support person on staff.

ICF International's offices, located at 9300 Lee Highway, Fairfax, VA, will be the primary place of performance for the evaluation. The headquarters is supplied with office equipment and furniture that is adequate for the performance of the proposed evaluation activities.

Major Equipment:

Alliance for Applied Research in Education and Anthropology (AAREA)

1. Computers: Thirteen networked Intel Pentium processor personal computers and six laptop computers.
2. Additional Office Equipment: One copier, two fax machines, two laser printers (one with color), a scanner, at&t digital telephone service, teleconferencing capabilities, and working facilities for a minimum of thirteen research members.

ICF International

1. Computer Network and IT Infrastructure: Individual laptop personal computers for all staff and Blackberry handheld devices distributed to managers and key project staff with a need for all hour accessibility. Corporate technology and telecommunications infrastructure supports access to local and wide-area networks (LAN and WAN) and daily backup services. LAN and WAN supports more than 3,750 staff distributed across more than 70 offices in addition to client sites and numerous home-based offices. State-of-the-art Tier IV data center available for secure and reliable hosting using the latest in firewall and security monitoring technology. There are triple redundant 1 Megawatt (MW) backup power generators and network connectivity is assured through the use of multiple and diverse Tier I internet providers.
2. Phone, Video and Web Conferencing: VoIP with call forwarding, conference call feature, speakerphone and voicemail, teleconferencing up to 125 participants per call controlled access via pass-code security. Live Meeting Web conference capabilities up to 5,000 participants per meeting. Video conferencing equipment.

Other Resources:

Alliance for Applied Research in Education and Anthropology (AAREA)

1. A full-time support staff consisting of an administrative assistants, senior secretary and office manager.
2. Computer/technology support is available for installation and repair of computers and other office equipment.
3. A conference room with projector and teleconferencing capabilities.

ICF International

1. Graphics and Production Center: In-house graphics design studio staffed by 10 graphics artists and designers for high-quality graphics, multimedia, photography, modeling, and publication design. Equipped with both PC and MAC platforms. Full state-of-the-art reprographics shop equipment. Award-winning video studio in Rockville, MD and state-of-the-art recording studio in Atlanta, GA office.
2. Conference Room Facilities: In the Fairfax office, a fully equipped auditorium with seating for 97 people, an adjacent breakout room for up to 60 participants, a formal boardroom for 35 participants, and approximately 45 smaller meeting rooms on each of the building's 12 floors that can accommodate 5 to 25 people all with wireless internet connections. DC conference facilities for up to 70 people; 3 additional conference rooms accommodate 22 people, 12, and 10 each. Two conference rooms are equipped with state-of-the art audiovisual equipment, including wall-mounted plasma monitors. The Rockville, MD office offers a large, professional conference room with space for 60 participants in a theater configuration or more than 40 for interactive conference settings. In addition, the office has six smaller meeting rooms that can accommodate 5 to 15 people.
3. Library Facilities: Staffed Research Services with ready access (800 computerized databases) government, research, university, law, and public libraries. Library staff participate in the OCLC Interlibrary Loan Network to access articles, books, and other materials from technical, research, and government libraries across the US and around the globe.



National Science Foundation
www.madeinflorida.org
www.fl-ate.org

October 13, 2010

Will Tyson, Ph.D., Assistant Professor
University of South Florida
Department of Sociology
4202 E. Fowler Ave., CPR 107
Tampa, FL 33620

SUBJECT: Letter of Support to the University of South Florida AAREA

Dear Dr. Tyson:

FLATE looks forward to participating in your project entitled "*Successful Academic and Employment Pathways in Advanced Technologies*" to be submitted to the National Science Foundation's Advanced Technological Education (ATE) program. This project will better define our student customers and the decisions they make in pursuing the Engineering Technology A.S./A.A.S. degrees offered at four colleges in the greater Tampa Bay area.

I understand that the proposed project will investigate educational pathways that students take and other contextual factors that contribute to their successful engagement in engineering/engineering technology studies. FLATE will help to coordinate all educator, administrator, and students at participating colleges offering the A.S./A.A.S. Engineering Technology and/or its related college certificates. FLATE will also serve on the project advisory board. I look forward to learning more about student decision making, access, and other variables that obstruct or encourage a pathway to an engineering technologies career. This kind of information gathered at a number of educational institutions should provide us with solid information that can help us design better and smoother pathways for student educational and career success.

I am extremely interested in the proposed research and enthusiastic about being involved in the project. Dr. Marie Boyette, FLATE Associate Director will be your point of contact for the FLATE. Should you have questions or need further information, please contact her at [813.259.6579] or mboyette3@hccfl.edu. Dr. Boyette will also work directly with Dr. Anzalone, HCC's Program Manager for the participation of the HCC Engineering Technology Program.

Sincerely,

Marilyn Barger, Ph.D. P.E.
Executive Director, FLATE

Hillsborough Community College • Brandon Campus • 10414 East Columbus Drive • Tampa, Florida • 33619

Marilyn Barger, Ph.D., P.E.
Executive Director
Principal Investigator, HCC
(813) 259-6578
barger@fl-ate.org

Richard Gilbert, Ph.D.
Principal Investigator, USF
(813) 974-2139
gilbert@fl-ate.org

Bradley Jenkins, M.S.
Principal Investigator, SPC
(727) 341-4378
jenkins@fl-ate.org



ST. PETERSBURG COLLEGE

OFFICE OF THE PROVOST
Clearwater Campus
(727) 791-2474

10-14-2010

Will Tyson, Ph.D.
Assistant Professor
Department of Sociology
University of South Florida
4202 E. Fowler Ave., CPR 107
Tampa, FL 33620.

SUBJECT: Letter of Support to FLATE and the University of South Florida

Dear Dr. Tyson:

St. Petersburg College looks forward to participating in your project entitled "*Successful Academic and Employment Pathways in Advanced Technologies*" to be submitted to the National Science Foundation's Advanced Technological Education (ATE) program.

I understand that the proposed project will investigate pathways that students take and other contextual factors that contribute to the success of students engaged in engineering study. I would like to confirm my participation in the proposed project as an institution that prepares students for a career in advanced engineering technologies. We understand that faculty and administrators of the engineering technologies program will be asked for their voluntary participation in interviews, observations and other data collection activities and that students in the engineering technology program will also be solicited for their voluntary participation in interviews or focus group interviews and other data collection activities and that participants in these activities will be offered small monetary compensation. Results from this study have implications for informing educators involved at the high school and community college levels about student decision making, access, and other variables that obstruct or encourage a pathway to an engineering technologies career.

I am extremely interested in the proposed research and enthusiastic about being involved in the project. I think this project will help in identifying the student pathways to be successful in our engineering technology program and this data collected will help in the sustainability of our ET program.

Brad Jenkins, Program Director, Engineering Technology will be your point of contact for St. Petersburg College. Should you have questions or need further information, please contact him at 727-341-4378 or email at jenkinsb@spcollege.edu.

We look forward to working with you on this important project.

Sincerely,

Dr. Stan Vittetoe
Provost & VP Workforce Education

POLK STATE

COLLEGE

October 11, 2010

Alliance for Applied Research in Education and Anthropology
Department of Anthropology, University of South Florida
4202 E. Fowler Ave. SOC 107
Tampa, FL 33620

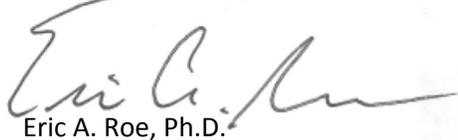
Dear Drs. Tyson and Barger,

The Engineering Technology department of Polk State College looks forward to participating in your project entitled "*Successful Academic and Employment Pathways in Advanced Technologies*" to be submitted to the National Science Foundation's Advanced Technological Education (ATE) program.

I understand that the proposed project will investigate pathways that students take and other contextual factors that contribute to the success of students engaged in engineering and engineering technology studies. I would like to confirm my participation in the proposed project as an institution that prepares students for a career in advanced engineering technologies. We understand that faculty and administrators of the AS Engineering Technology program will be asked for their voluntary participation in interviews, observations and other data collection activities and that students in the program will also be solicited for their voluntary participation in interviews or focus group interviews and other data collection activities and that participants in these activities will be offered small momentary compensation.

Results from this study have implications for informing educators involved at the high school and community college levels about student decision making, access, and other variables that obstruct or encourage a pathway to an engineering technologies career. As one of the creators of Florida's Engineering Technology A.S. degree program, I am extremely interested in the proposed research and enthusiastic about being involved in the project. Your results will help Polk State with our long-term Engineering Technology implementation plans. I will serve as your point of contact for Polk State. Should you, or the reviewers, have questions or need further information, please contact me.

Best regards,



Eric A. Roe, Ph.D.

Director of Applied Technology, Polk State College
PI/Director, Employ Florida Banner Center for Advanced Manufacturing
PI, US DOL Engineering Technology & Advanced Manufacturing Initiative - PSC
www.polk.edu/engtech
Office: 863.669.2838
fax: 863.669.2330
Skype: [dr.eric.roe](https://www.skype.com/people/dr.eric.roe)
eroe@polk.edu

ENGINEERING TECHNOLOGY
POLK STATE COLLEGE

Dr. Eric Roe | 863.669.2838 | engtech@polk.edu | www.polk.edu
999 Avenue H, NE – Winter Haven, FL - 33881

October 13, 2010

Marilyn Barger, Ph.D., P.E.
P.I. and Executive Director, FLATE
Florida Advanced Technological Education
Center
Hillsborough Community College
10414 E Columbus Dr
Tampa, FL 33619

Will Tyson, Ph.D.
Assistant Professor
Department of Sociology
University of South Florida
4202 E. Fowler Ave., CPR 107
Tampa, FL 33620

Dear Drs. Barger and Tyson:

The Office of Career & Technical Education (CTE), State College of Florida – Manatee/Sarasota, looks forward to participating in your project entitled “*Successful Academic and Employment Pathways in Advanced Technologies*” to be submitted to the National Science Foundation’s Advanced Technological Education (ATE) program.

I understand that the proposed project will investigate pathways that students take and other contextual factors that contribute to the success of students engaged in engineering study. I would like to confirm my participation in the proposed project as an institution that prepares students for a career in advanced engineering technologies. We understand that faculty and administrators of the engineering technologies program will be asked for their voluntary participation in interviews, observations and other data collection activities and that students in the engineering technology program will also be solicited for their voluntary participation in interviews or focus group interviews and other data collection activities and that participants in these activities will be offered small monetary compensation. Results from this study have implications for informing educators involved at the high school and community college levels about student decision making, access, and other variables that obstruct or encourage a pathway to an engineering technologies career.

I am extremely interested in the proposed research and enthusiastic about being involved in the project for the following reasons:

- Project will augment my current research regarding career decisions and college persistence
- Results from the proposed project will have utility in the development or enhancement of marketing, outreach, advising and retention innovations for the engineering technology degree programs
- Project will provide useful *qualitative data* to contextualize the experience of students and *quantitative data* to examine trends and outcomes.

I will be your point of contact for the college. Should you have questions or need further information, please contact me at (941) 363-7230 or philliii@scf.edu.

Sincerely,

Idelia Phillips. Ed.D.
Director of Career & Technical Education



October 21, 2010

V. Celeste Carter
National Science Foundation
ATE Division of Undergraduate Education
4201 Wilson Blvd.
Arlington, VA 22230

SUBJECT: ICF Proposal 2010848 in Response to University of South Florida Request Regarding National Science Foundation Solicitation 10-539; "Successful Academic and Employment Pathways in Advanced Technologies"

Dear Dr. Carter:

ICF Incorporated, L.L.C. (an ICF International company hereafter referred to as "ICF") is pleased to partner with the University of South Florida as a subcontractor to provide a proposal in response to the subject request. This proposal is valid for a period of 120 days from the date of its submittal, at which time ICF reserves the right to revise the contents or extend the validity date, if needed.

We are pleased to serve as the external evaluator to Dr. Tyson's ATE proposal, *Successful Academic and Employment Pathways in Advanced Technologies*. Examining the academic and career trajectories of community college students who seek associates degrees in engineering/manufacturing is important for understanding the growing role that community colleges play in developing the nation's technical workforce. The ICF team will consist of Mr. Thomas Horwood, who will lead the evaluation, Dr. Aikaterini Passa, who is an expert in quantitative data analysis, and Dr. Teresa Garcia Duncan, who will serve as senior advisor. ICF's strengths in the areas of program evaluation and STEM are well represented by this team, and we are delighted to be able to be part of this project.

Tim Lowry, Staff Director, is available to discuss contractual issues and may be contacted at 781-676-4016, or via email at (tlowry@icfi.com). Issues of a technical nature should be directed to Thomas Horwood, Project Manager, at 703-225-226, or via email at (thorwood@icfi.com). Correspondence should be faxed to 703-218-2547.

Sincerely,

A handwritten signature in blue ink that reads "F. Michael Gray". The signature is fluid and cursive.

F. Michael Gray
Vice President
Director of Contracts
703-934-3527
michaelgray@icfi.com



October 12, 2010

Will Tyson, Ph.D.
Principal Investigator
University of South Florida
College of Arts and Sciences
4202 Fowler Ave., CPR107
Tampa, FL 33620

Dear Will,

I am pleased to write this letter of commitment in support of your proposal to the National Science Foundation's Advanced Technological Education Program. Examining the academic and career trajectories of community college students who seek associates degrees in engineering/manufacturing is important for understanding the growing role that community colleges play in developing the nation's technical workforce. We are excited to be part of your team.

ICF International (ICF) is fully prepared to commit the time and resources at the level required to guarantee an evaluation of the highest quality. The ICF team consists of Mr. Thomas Horwood, who will lead the evaluation, Dr. Aikaterini Passa, who is an expert in quantitative data analysis, and Dr. Teresa Garcia Duncan, who will serve as senior advisor. We welcome the opportunity to support the USF-led team in this challenging and important effort.

Sincerely,

A handwritten signature in black ink that reads "Maureen W. Murphy". The signature is written in a cursive, flowing style.

Maureen W. Murphy
Senior Vice President
Director, Education Division
ICF International