National Science Foundation
Directorate for Education and Human Resources (EHR)
Division of Undergraduate Education (DUE)

STEP 2011: Institutional Culture, Institutional Change & Institutionalization

Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP)
2011 Grantees Meeting

March 17-18, 2011
Omni Shoreham Hotel
Washington, D.C.

Breakout Sessions
Schedule and Descriptions

For the 2011 meeting, there will be 10 breakout groups in each of three sessions. As in previous meetings, many of the breakout sessions involve short panel presentations followed by discussion (panel format). Also, as in past years, there will be a follow-up session with our Thursday morning plenary speaker.

This year, however, we also have 12 "workshop" sessions that have been designed by STEP grantees. Workshop formats vary somewhat depending on the presenters. Details can be found in the following summaries.

We encourage you to read through the topics and summaries carefully before signing up for breakout sessions (i.e., before completing the meeting registration process). We also encourage you to discuss the breakouts with your colleagues so as to optimize the participation of your project team.

Our hope is that meeting participants will come to the breakout sessions ready to participate fully in the discussions and share their own experiences and results, rather than to simply listen to the designated presenters. We also hope that most, if not all, of the sessions will end with a "product" that can be shared with the rest of the STEP community (e.g., a list of challenges, or of best practices).

Breakout Session **I** -- Thursday, March 17, **10:45 a.m. – 12:15 p.m.**

I -1 Crossing the Divide: Building Strong Two-Year/Four Year Partnerships (workshop; repeated in session III in panel format) ROOM: CABINET

Presenters: Louis J. Liotta (PI), Kendra Twomey (Co-PI), Magdalena Pederson (Co-PI), Bonnie Troupe -- Stonehill College and Massasoit Community College; Carolyn Vallas (PI) and Patricia Taylor (Co-PI) -- University of Virginia and Thomas Nelson Community College
Moderator: Eun-Woo Chang, NSF

Summary:
A brief overview of joint efforts between Stonehill College/Massasoit Community College and the University of Virginia (UVA)/Thomas Nelson Community College(TNCC) STEP projects will be presented. Each partnership and session participants will provide hurdles particular to two-year/four year partnerships in recruitment and retention of STEM students. Strategies used by the each of the partnerships and by others as well as modifications made to originally proposed activities in order to overcome these hurdles will be discussed.

The objective of this session will be to identify solutions to potential obstacles that can occur in two-year/four-year partnerships. Topics of interest as they relate to two/four-year institutions STEP partnerships will be initiated by a short presentation and followed by a group discussion with the audience.

Stonehill College and Massasoit Community College have sustained a great working relationship from the inception of their project, responding to hurdles in implementation of the grant initiatives through the support of institutional champions, flexibility in approaches taken to achieving project objectives, and maintaining continuous vision with regards to the grant's objectives. The cooperative partnership between UVA and TNCC is the first such partnership between these two institutions, therefore understanding the community college and university cultures and establishing program infrastructure has been essential. A counselor\administrator position was established at TNCC to provide continuous program / student support and development. The priority of both STEP partnerships is to increase student awareness and participation in STEM at both institutions through a variety of mechanisms.

I -2 Improving Retention & Student Success through Cohort-Building & Social Networking (panel; repeated session II) ROOM: EMPIRE BALLROOM

Panelists: Maureen Scharberg, San Jose State University; Barbara Speziale, Clemson University; AE Dreyfuss & Estela Rojas, CUNY-NY City College of Technology; Paul Engelmann, Western Michigan University
Moderator: Janis Terpenny, NSF

Summary:
This session will focus on strategies for building community among students, and the impact of those strategies on STEM retention. Discussion topics include strategies aimed at crtical transition points where attrition or low academic performance is known to be high for certain groups (e.g., entering freshman, community college transfers, transition to upper division core, underrepresented engineering students).

I -3 Improving Student Success in Foundational Courses in Math (panel; repeated session II) ROOM: EMBASSY

Panelists: Jose Giraldo, Texas A&M University-Corpus Christi; Linda Trible, University of Southern Indiana; Catherine Beneteau, University of South Florida
Moderator: Dan Maki, Indiana University

Summary:
This session will consider the challenges, successes, and best practices in preparing students for calculus. Discussions will focus on strategies for identifying at risk students (for example, through the use of calculus readiness tests) and for improving their chances of success through the use of strategies such as bridge programs, peer mentoring, learning communities, changes to precalculus courses, or curricular revisions.

I -4 Implementing Early Undergraduate Research & Internships (panel; repeated session III)

ROOM: CAPITOL

Panelists: Bryan Tippett, Estrella Mountain Community College; Don Franceschetti, University of Memphis; Lynn Huntsinger, UC Berkeley
Moderator: Iraj Nejad, Mt. San Antonio College

Summary:
This session will consider the challenges and successes in designing and implementing early undergraduate research experiences and internships that serve to retain students in STEM fields. Discussions will include preparing students for these experiences, making these experiences meaningful, reaching a broader range of students, and engaging and retaining faculty mentors.

I -5 Institutionalization & Sustainability of STEP Projects (workshop; repeated session III)

ROOM: PALLADIAN BALLROOM

Presenters: Dr. Michael Georgiopoulos (PI) and Dr. Cynthia Young (Co-PI), University of Central Florida; Ms. Nirmala Ramlakhan (Senior Program Manager), WORKFORCE CENTRAL FLORIDA; and representatives from WORKFORCE organizations in NY, TX, CA.
Moderator: John Dwyer, St. Catherine University

Summary:
One of the biggest challenges of NSF STEP grantees is to find ways to institutionalize their projects' efforts at their respective institutions and to also find other reliable sources of funding for their efforts (private funding sources, other funding sources) well and beyond the resources that their institution can provide. This breakout session will showcase successful efforts from the attendees and eventually will come up with a list of successful strategies to institutionalize/sustain STEP grants and associated points of contact for each such successful strategy.

The breakout session will start with a brief description by the UCF PIs (Michael Georgiopoulos and Cynthia Young) that explains the steps taken to have EXCEL (UCF STEP grant) institutionalized. Then, Nirmala Ramlakhan from WORKFORCE CENTRAL FLORIDA (WCF) will discuss the process to create a successful collaboration of a STEP grant and a WORKFORCE organization, using as an example the already established UCF-EXCEL/WCF collaboration. Nirmala Ramlakhan is coordinating with the other WORKFORCE organization representatives so that her presentation is reflective of what these organizations are interested in supporting.

Small group discussions will provide opportunities for participants to identify project components they plan to institutionalize and to share their ideas and strategies with other participants and with WORKFORCE organization representatives. We will conclude with a group reflection where each group provides one to two key elements to consider or hints for success in institutionalizing/sustaining STEP grants.

The expected outcomes from this breakout session is a list of strategies that have worked in institutionalizing and sustaining STEP grants and a point of contact (name and e-mail) for each such strategy. This list would provide the necessary follow up information to STEP grantees that could help them institutionalize/sustain components of their STEP efforts. Furthermore, the participating WORKFORCE organizations will provide a list of venues (e.g., conferences that they typically go to) where the forum is appropriate for STEP grantees to present the successes of their STEP efforts and seek for the support of WORKFORCE organizations from around the nation.

I -6 Get it Together: Managing (Lots of!) People on an NSF STEP Project (workshop)

ROOM: SENATE

Presenters – Dr. Cynthia Furse (PI), Dave Richerson (Project Manager), Karen Krapcho (Outreach Coordinator), Amy Bergerson (Assessment) -- University of Utah
Moderator: Russ Pimmel, NSF

Summary:
NSF STEP projects inevitably involve large, complex groups of interrelated people, all with different agendas, needs, ideas, and often with different goals and directions. Working with this wide array of

people is both the greatest strength and the greatest challenge of these projects. This breakout session is designed to help project leaders and proposed project leaders identify and consider the complex "people issues" in their project and possible ways they might handle them.

One of the greatest strengths and greatest challenges of most STEP projects, including ours, is the wide array of people involved in the project – lots of people, lots of different people, lots of different people with different needs and different schedules and different priorities and different ways of viewing the project, all needing what they need when they need it! For starters, our project involves numerous faculty, administrators, outreach coordinators, and 35+ undergraduate students in the College of Engineering (7 departments plus one), our local community college, teachers, parents, counselors, and students in dozens of high schools in several different school districts, MESA after school programs, Girl Scouts, university student groups (SWE, Tau Beta Pi, IEEE, etc.), even the state legislature, and more. All of these people are why our project has been so successful. And why is has been SOOO challenging!

In this breakout group, we will discuss:

- Choosing, NOT choosing, and coordinating your critical stakeholders.
- Figuring out what they need, what you really need, and how to align everyone's needs.
- Herding cats (or is it Labrador puppies?!) -- Keeping everyone headed more or less down the same path. Who is controlling your project, and how?
- Managing the workload (don't try to load a dump truck with a tea spoon, go get a backhoe)
- Delegation, the Dirty Word you CANNOT live without. How to depend on it, and how to love it.
- Managing Change – disruptive technology, feature creep, project metamorphosis.

To get people involved in discussion, we will ask everyone to note down all of the people challenges they have with their current project or that they anticipate with a future project, a list they can add to throughout the discussion. Small group discussions will be interspersed throughout the session, and the session will conclude with a group reflection where each group provides one key element to consider or hint for success.

I -7 Strategies for dissemination and publication of results (panel) ROOM: EXECUTIVE

Panelists: Paris Svoronos, CUNY-Queensborough Community College; Joseph Skrivanek, Purchase College, SUNY; Chandra Muller, University of Texas at Austin
Moderator: Dave Matty, NSF

Summary:
This session will discuss appropriate ways to disseminate results of STEP projects. What are the meetings and conferences that we should consider for presentations and workshops? What journals are most appropriate, and what should we do to increase the likelihood that our manuscripts will be accepted?

I -8 Assessing your STEP project: an Approach to Disentangling the Effects of Interwoven Project Strategies (workshop) ROOM: CONGRESSIONAL B

Presenters: Frankie Santos Laanan, Diane Rover -- Iowa State University; and team members from Des Moines Area Community College
Moderator: Bert Holmes, NSF

Summary:
Like many STEP projects, the ISU-DMACC project (called SEEC, for Student Enrollment and Engagement through Connections) has implemented various strategies to enhance recruitment and retention. For many reasons, project strategies may be interwoven with other activities. This makes it challenging to measure the effectiveness of particular strategies. Nonetheless the effect of specific project activities is important for sustaining and transferring results of the project. The session will present an approach to assessing the effect of a STEP project and give an example of the SEEC effect.

The session will highlight a methodological strategy to assess/evaluate pre-engineering experiences of transfer students at a research university. Specifically, the objective is to understand the extent to which prior experiences at the community college relate to students' academic performance and retention in engineering. The presenters will discuss the design of the assessment, data collection and analytic approach. Implications for research, policy, and practice will be addressed.

We will illustrate the design of the study and involve participants in aspects of development and analysis through small and large group discussion. Participants will also be guided in a short exercise related to measuring the effect of their own project.

I -9 Institutional Influence on Project Success (workshop) ROOM: FORUM

Presenters: Carl Knight (PI), Melanie Gill-Shaw (co-PI), Jessica Silva (SEM Laboratory Coordinator) -- Eastfield College (Dallas County Community College District)
Moderator: Dennis Davenport, NSF

Summary:
Institutional influence is a key component for program success. Institutional readiness and support can either enhance success or derail an outstanding grant. Executive administrative support, compatible strategic plans and grant goals, organizational infrastructure, openness to innovative concepts, and implementation and sustainability resources are vital for program success.

A brief discussion on Institutional Influence will be presented. Participants will be divided into groups and provided an *Organizational Assessment* to review.

Participants will be encouraged to comment on particular institutional components affecting their program. A spokesperson from each table will present the issues discussed by their group. Suggestions will be recorded and compiled for distribution to the attendees, followed by a discussion on how to engage the administration in order to promote sustainability of the grant after completion. The concepts used in our grant and their outcomes will be presented.

I -10 Becoming Change Agents in STEM: Follow-Up Session with Plenary Speaker, Alicia Dowd ROOM: DIRECTOR'S

Moderator: Larry Suter, NSF

Summary:
Dr. Dowd is the co-director of the Center for Urban Education at USC. The abstract of her plenary talk can be found in the meeting agenda.

Breakout Session **II** -- Thursday, March 17 -- **2:00 p.m. – 3:30 p.m**

II -1 Building Strong Partnerships with High Schools (panel) ROOM: SENATE

Panelists: Gloria Liu & Joe Kotowski, Oakton Community College; Stuart Long, University of Houston; James Nelson, Louisiana Tech University
Moderator: Dan Maki, Indiana University

Summary:
Many STEP projects involve strategies for recruitment that include partnering with high schools. This session will consider the challenges involved in establishing meaningful partnerships that improve recruitment of STEM students and serve to ease the transition from high school to college. Discussions will include identifying the key elements of successful partnerships and the most common roadblocks within partnerships, and will examine how to measure the effectiveness of such partnerships.

II -2 Articulation Agreements, Reverse Articulation Agreements, & Other Transfer Issues (panel) ROOM: FORUM

Panelists: Lynn Narasimhan, DePaul University; Joseph Barba, City College of New York; David Jones, University of Nebraska Lincoln
Moderator: Eileen Lewis, University of California, Berkeley & Canãda College

Summary:
This session will consider the challenges, successes in smoothing STEM students' transition between community colleges and four-year schools.

II -3 Improving Retention & Student Success through Cohort-Building & Social Networking (panel; repeated session I) ROOM: EMPIRE BALLROOM

Panelists: John Nicklow, Southern Illinois University Carbondale; Lisa Ely, Central Washington University; Annie McMahon & Jane L. Wolfson, Towson University
Moderator: Scott Grissom, NSF

Summary:
This session will focus on strategies for building community among students, and the impact of those strategies on STEM retention. Discussion topics include strategies aimed at crtical transition points where attrition or low academic performance is known to be high for certain groups (e.g., entering freshman, community college transfers, transition to upper division core, underrepresented engineering students).

II -4 Improving Student Success in Foundational Courses in Math (panel; repeated session I) ROOM: CAPITOL

Panelists: Sylvia M. Orr, Estrella Mountain Community College; Nathan Klingbeil, Wright State University; Martin Bonsangue & Mark S. Filowitz, California State University Fullerton
Moderator: Roger Seals, Louisiana State University

Summary:
This session will consider the challenges, successes, and best practices in preparing students for calculus. Discussions will focus on strategies for identifying at risk students (for example, through the use of calculus readiness tests) and for improving their chances of success through the use of strategies such as bridge programs, peer mentoring, learning communities, changes to precalculus courses, or curricular revisions.

II -5 Improving Student Success in Foundational Courses in the Sciences (panel; repeated session III) ROOM: EXECUTIVE

Panelists: Jon Sticklen, Michigan State University; Roman J. Miller, Eastern Mennonite University; Bennett Goldberg, Boston University
Moderator: Dave Matty, NSF

Summary:
This session will consider the challenges and successes associated with introductory science courses. Discussions will focus on strategies for increasing student retention through the use of strategies such as bridge programs, peer mentoring, learning communities, special introductory courses or seminars, pedagogical changes, or curricular revisions.

II -6 Running a successful Peer-Led Team Learning (PLTL) Program: A Positive Impact on Student Retention and on Student Leaders (workshop) ROOM: PALLADIAN BALLROOM

Presenters: Dr. James Becvar, Ms. Ann Darnell -- University of Texas at El Paso; Dr. Herve Collin, Dr. Louise Pagotto, Dr. Maria Bautista, Mrs. Amy Patz -- Kapi`olani Community College
Moderator: John Dwyer, St. Catherine University

Summary:
Our STEP projects have now expanded PLTL into physics, precalculus, chemistry and biology courses at UTEP and Kapi`olani. Our strategies in these courses have been to: (1) reduce the traditional amount of lecture time by one hour a week and replace it with an extra hour of active learning in mandatory small group workshops led by undergraduate students (peer leaders) who have previously done well in the course, and (2) offer strongly recommended 2-hour PLTL sessions twice a week for each course section. PLTL has proved overwhelmingly accepted among students and peer leaders. Outside observers, including the members of the External Advisory Board, PLTL session evaluations, students' grades and leaders' retentions (continuation towards advanced degrees) confirmed the efficacy of PLTL implementations.

The following are potential questions and suggestions to be considered during the presentation and subsequent group discussions:

- What lessons have been learned from PLTL?
- Where has PLTL at UTEP and KCC proved successful/unsuccessful? Why?
- How should the local faculty development center as well as consultants be used for strategic support?
- How can a project make the most from its Internal and External Advisory Boards?
- How can survey results and student and peer leader data influence the faculty and the administration?
- How can a project use unexpected evaluative data to improve the project?
- How can online material help implementing PLTL sessions into contact time (reducing lecturing time)?
- What impact has the experience had on the professional development of the leaders involved?
- How best to provide consistent and constant leader training?
- How can successful strategies be adopted to put 'active' into active learning?
- How can PLTL be successfully assessed?
- Which students attend optional sessions?

II -7 Models for Undergraduate Research involving Community College Students (workshop) ROOM: CONGRESSIONAL B

Presenters: Daina Hardisty (Faculty Associate) -- Mt. Hood Community College; Kate Hulpke (Project Coordinator) and Dean Livelybrooks (PI) -- University of Oregon; Carl Knight (PI) -- Eastfield College (Dallas County Community Colleges)
Moderator: Bert Holmes, NSF

Summary:
How does participation in research help community college students forge a path to becoming a scientist or engineer, and what does that research look like? Two different models are presented to stimulate discussion: a multi-campus, multi-discipline CC collaboration with a research university that includes a 10-week university-based summer research experience, and a CC-driven program offering two summer

research institutes, one, in graduate school laboratories, the other conducting field research in a national preserve.

A goal of this session is to develop and address a set of 'critical questions and elements,' including: how much research is necessary to alter student career trajectories, what elements comprise an environment conducive to student research success, what constitutes 'authentic' research, and what are CC and university faculty and administrator roles in fostering CC student research.

After very brief presentations by Eastfield Community College and University of Oregon program leaders, participants will be asked to think/pair/share about experiences they had which set them on the path to where they are now. This will result in generation of critical elements and questions, and participants will then work in groups focusing on how STEP programs address specific elements or questions, including how student and faculty data are used to inform the development of model elements and/or answer questions. The remainder of the session will be devoted to sharing, discussing and refining group findings.

II -8 Evaluation 101: How to Construct and Strategize For Your Evaluation Plans (workshop)

ROOM: CABINET

Presenter: Mack Shelley, University Professor of Statistics, Political Science, and Educational Leadership and Policy Studies -- Iowa State University
Moderator: Myles Boylan, NSF

Summary:
This workshop will introduce the basics of setting up an evaluation plan and how to make strategic decisions about how best to conduct your evaluation to provide the most informative results.

We will explore how to construct goals and objectives for successful program and project evaluation, with a focus on linking empirical quantitative measurements and qualitative data to determining whether the goals and objectives have been attained. The use of logic models will be discussed as a useful mechanism to guide the conceptualization of goals and objectives and to establish the framework for successful evaluation strategies. Human subjects issues are discussed. As a result of participating in this workshop, you will be better able to design, implement, and communicate evaluation findings, and you will be able to assess critically the quality of evaluation reports and of the advice you may receive about how to conduct your own evaluation.

Recommended Resources:
Emison, G.A. (2007). *Practical program evaluations: Getting from ideas to outcomes.* Washington, DC: CQ Press.
Atomic Dog's *Research Methods Knowledge Base,* an online text.

- Trochim, W.M. *The research methods knowledge base* (2nd ed.). URL: http://www.socialresearchmethods.net/kb/

An online training course in the application of logic models, developed by the University of Wisconsin Extension is available at:

- http://www.uwex.edu/ces/lmcourse/
  - a schematic of the logic model is available at: http://www.csrees.usda.gov/nea/food/fsne/pdfs/full_logic_model_2006.pdf

Relevant information about the treatment of human subjects is provided in the Code of Federal Regulations [CFR (45 CFR 46)] governing the treatment of human subjects in research, and the related Belmont Report and the Nuremberg Code, which are available on the Web at:

- http://frwebgate1.access.gpo.gov/cgi-bin/TEXTgate.cgi?WAISdocID=44GHZM/14/1/0&WAISaction=retrieve
- http://www.hhs.gov/ohrp/humansubjects/assurance/filasurt.htm
- http://ohsr.od.nih.gov/guidelines/belmont.html
- http://ohsr.od.nih.gov/guidelines/nuremberg.html

II -9 Encouraging Student Participation in Project Activities (panel) ROOM: EMBASSY

Panelists: Jason Katz, University of South Carolina; Karen Groppi, Cabrillo College; Dhushy Sathianathan, California State University, Long Beach
Moderator: Pratibha Varma-Nelson, Indiana University-Purdue University Indianapolis

Summary:
This session will consider the challenges and successes in ensuring student participation in planned enrichment activities that take place outside standard course times. Discussions will include adapting such activities as early research experiences, internships, peer tutoring, open-ended projects, career mentoring, and tutoring to student bodies with large numbers of commuting and/or part time students, or students with complicated schedules and external responsibilities.

II -10 Type 2 Round-Table ROOM: DIRECTOR'S

Moderator: Connie Della-Piana, NSF

Summary:
This session is designed to allow a forum for those with Type 2 awards to share their ideas, strategies, success stories, and challenges. Others wanting to learn more about STEP research projects are welcome to attend.

Breakout Session **III** -- Friday, March 18 -- **8:30 a.m. – 10:00 a.m**

III -1 Crossing the Divide: Building Strong Two-Year/Four-Year Partnerships (panel; repeated session I in workshop format) ROOM: COUNCIL

Panelists: James Lisy, University of Illinois at Urbana-Champaign; Pamela Lockwood, West Texas A&M University; Hedley Freake, University of Connecticut
Moderator: Roger Seals, Louisiana State University

Summary:
Many STEP projects involve strategies for building partnerships between two-year and four-year schools. This session will consider the challenges involved in establishing meaningful partnerships that serve to attract and retain students in STEM fields and smooth their transition from two-year to four-year schools. Discussions will include identifying the key elements of successful partnerships and the most common roadblocks within partnerships, and will examine how to measure the effectiveness of such partnerships.

III -2 Improving Student Success in Foundational Courses in the Sciences (panel; repeated session II) ROOM: CONGRESSIONAL B

Panelists: Judy Ridgway, The Ohio State University: Newt Copp & Scot Gould, Claremont College; Arthur Zeitlin & Craig Hinkley, Kingsborough Community College
Moderator: Eileen Lewis, University of California Berkeley & Canãda College

Summary:
This session will consider the challenges and successes associated with introductory science courses. Discussions will focus on strategies for increasing student retention through the use of strategies such as bridge programs, peer mentoring, learning communities, special introductory courses or seminars, pedagogical changes, or curricular revisions.

III -3 Strategies for Preparing Students for Calculus (e.g., Bridge Programs) (panel) ROOM: DIRECTOR'S

Panelists: Rahman Tashakkori, Appalachian State University; Anant R. Kukreti, University of Cincinnati; Warren N. Waggenspack, Jr, Louisiana State University
Moderator: Russ Pimmel, NSF

Summary:
This session will consider the challenges and successes associated with preparing students for courses in calculus. Various strategies, including placement exams, bridge programs, tutoring, and special courses, may be discussed.

III -4 Implementing Early Undergraduate Research and Internships (panel; repeated session I) ROOM: CAPITOL

Panelists: Peggy Doerschuk, Lamar University; Stephen Hale, University of New Hampshire; Sunghoon Jang & Pamela Brown, CUNY-NY City College of Technology
Moderator: Iraj Nejad, Mt. San Antonio College

Summary:
This session will consider the challenges and successes in designing and implementing early undergraduate research experiences and internships that serve to retain students in STEM fields. Discussions will include preparing students for these experiences, making these experiences meaningful, reaching a broader range of students, and engaging and retaining faculty mentors.

III -5 Empowering Undergrads to Increase Effectiveness of Your STEP Project (workshop)

ROOM: FORUM

Presenters: Gary Winn (Co-PI), Robin Hensel, Gene Cilento (PI) -- West Virginia University
Moderator: Pratibha Varma-Nelson, Indiana University-Purdue University Indianapolis

Summary:
You may have the idea for a great programmatic intervention (i.e., your STEP Project), but your undergraduate students are the ones to make it work! After 5 years of implementation, we've learned that the strength of the program is built on the enthusiasm, dedication, and leadership of the participating undergraduate students. The learners learn more from their peers (or close-to-peers) than they ever will from you!!!

This workshop will outline ways to organize the "real workers" in your project. It will further identify what undergraduate students can and should do (and perhaps a few things they really should NOT do), the benefits to the undergraduate STEM student in participating, and the benefits to your program.

In this breakout session, we will present our lessons learned through the 5 years of our STEP grant regarding the unexpected value in empowering undergraduate students to take more and more control of the various aspects of the project activities. Specific examples of undergraduate leadership in summer camp and freshman program activities will be presented and benefits to the undergraduate students and the STEP Grant Program Activities will be identified.

We will engage the audience by leading multiple small and large group discussions focused on:

- Identifying the ways undergraduates are currently involved in their STEP projects
- Identifying the significant issues related to working with undergraduate students as *leaders* in the STEP project
- Determining possible solutions to the stated issues and concerns regarding undergraduate student leadership
- Developing guidelines to facilitate success in appropriately empowering undergraduate students to become more effective in achieving the goals of their STEP project.

Finally, we will guide the participants to determine how undergraduate students could play a more productive role in helping them achieve success in each of their current STEP initiatives.

III -6 Institutionalization and Sustainability of STEP Projects (workshop; repeated session I)

ROOM: DIPLOMAT BALLROOM

Presenters: Dr. Michael Georgiopoulos (PI) and Dr. Cynthia Young (Co-PI), University of Central Florida; Ms. Nirmala Ramlakhan (Senior Program Manager), WORKFORCE CENTRAL FLORIDA; and representatives from WORKFORCE organizations in NY, TX, CA.
Moderator: Janis Terpenny, NSF

Summary:
One of the biggest challenges of NSF STEP grantees is to find ways to institutionalize their projects' efforts at their respective institutions and to also find other reliable sources of funding for their efforts (private funding sources, other funding sources) well and beyond the resources that their institution can provide. This breakout session will showcase successful efforts from the attendees and eventually will come up with a list of successful strategies to institutionalize/sustain STEP grants and associated points of contact for each such successful strategy.

The breakout session will start with a brief description by the UCF PIs (Michael Georgiopoulos and Cynthia Young) that explains the steps taken to have EXCEL (UCF STEP grant) institutionalized. Then, Nirmala Ramlakhan from WORKFORCE CENTRAL FLORIDA (WCF) will discuss the process to create a successful collaboration of a STEP grant and a WORKFORCE organization, using as an example the already established UCF-EXCEL/WCF collaboration. Nirmala Ramlakhan is coordinating with the other WORKFORCE organization representatives so that her presentation is reflective of what these organizations are interested in supporting.

Small group discussions will provide opportunities for participants to identify project components they plan to institutionalize and to share their ideas and strategies with other participants and with WORKFORCE

organization representatives. We will conclude with a group reflection where each group provides one to two key elements to consider or hints for success in institutionalizing/sustaining STEP grants.

The expected outcomes from this breakout session is a list of strategies that have worked in institutionalizing and sustaining STEP grants and a point of contact (name and e-mail) for each such strategy. This list would provide the necessary follow up information to STEP grantees that could help them institutionalize/sustain components of their STEP efforts. Furthermore, the participating WORKFORCE organizations will provide a list of venues (e.g., conferences that they typically go to) where the forum is appropriate for STEP grantees to present the successes of their STEP efforts and seek for the support of WORKFORCE organizations from around the nation.

III -7 Increasing Retention through Improved Academic Advising & Academic Support Programs (panel) ROOM: EMPIRE BALLROOM

Panelists: Ellene Tratras Contis, Eastern Michigan University; Jianping Yue, Essex County College, NJ; Christine Whitlock, Georgia Southern University
Moderator: Scott Grissom, NSF

Summary:
This session will consider the challenges, successes, and best practices in academic advising and support programs as they relate to retention of STEM undergraduates.

III -8 Strategies for Promoting Diversity (panel) ROOM: EMBASSY

Panelists: Wendy Bohrson, Central Washington University; Kathryn Borman, University of South Florida William Trent, University of Illinois Urbana-Champagne; Lon Kaufman, University of Illnois at Chicago
Moderator: Sheryl Sorby, Michigan Technological University

Summary:
This session will consider the challenges, successes, and best practices in recruiting and retaining students who are underrepresented in STEM disciplines.

III -9 Evaluation 201: Implementing and Analyzing the Results from Your Evaluation Plan (NOTE Special time: 8:00 a.m. – 10:15 a.m) (workshop) ROOM: SENATE

Presenter: Mack Shelley, University Professor of Statistics, Political Science, and Educational Leadership and Policy Studies -- Iowa State University
Moderator: Connie Della-Piana, NSF

Summary:
This workshop will demonstrate best practices for implementing your evaluation, and for measuring, analyzing, and reporting the results of evaluation studies, using examples from evaluation research in education and other areas.

This workshop assumes basic familiarity with setting project evaluation goals and objectives, and with the application of logic models to guide evaluation strategy. With that foundation, this workshop addresses best practices for acquiring quantitative measurements and qualitative data to provide the information needed to evaluate program outcomes and impact. Using examples from recent evaluation efforts, the workshop will focus on the application of scientific methods that are essential to inform the art and practice of program evaluation and policy analysis. We will explore in some depth the concepts and practices of designing, implementing, and communicating the results of evaluation studies. Elements of program theory are addressed. Main topics addressed include the basic steps of policy analysis, evaluation approaches and processes, research design, data collection and analysis, and performance measurement. As a result of participating in this workshop, you should be better equipped to produce and consume program evaluation results, and you will be in a better position to conceptualize, conduct, and maximize the benefits of evaluation. One goal of the workshop is to assist with the preparation and presentation of evaluation results to maximize the impact of your reports.

Recommended Resources:

Bardach, E. (2005). *A practical guide for policy analysis: The eightfold path to more effective problem solving* (2nd ed.). Washington, DC: CQ Press.

Emison, G.A. (2007). *Practical program evaluations: Getting from ideas to outcomes.* Washington, DC: CQ Press.

Chen, H-T. (2005). *Practical program evaluation: Assessing and improving planning, implementation, and effectiveness.* Thousand Oaks, CA: Sage.

Atomic Dog's *Research Methods Knowledge Base,* an online text.

- Trochim, W.M. *The research methods knowledge base* (2nd ed.). URL: http://www.socialresearchmethods.net/kb/

A report from the U.S. Department of Commerce, Technology Administration, National Institute of Standards and Technology:

- Ruegg, R., & Feller, I. *A toolkit for evaluating public R&D investment: Models, methods, and findings from ATP's first decade,* at URL: http://www.atp.nist.gov/eao/gcr03-857/contents.htm

An online training course in the application of logic models, developed by the University of Wisconsin Extension is available at:

- http://www.uwex.edu/ces/lmcourse/
  - a schematic of the logic model is available at: http://www.csrees.usda.gov/nea/food/fsne/pdfs/full_logic_model_2006.pdf

III -10 Challenges in Migrating from a STEP 1A to a STEP 1B Project (workshop)

ROOM: CABINET

Presenters: Lucy Casale, James Dorsey (PI), Verónica Guajardo & Erik Jones -- University of Washington (Washington MESA Program)
Moderator: Ginger Rowell, Middle Tennessee State University

Summary:
The UW MESA team will discuss the successes and challenges experienced during the transition from our STEP 1A project to the current STEP 1B project, the *Washington MESA Community College Project (WA-MCCP).*

The session will include a brief overview of how the STEP 1A and STEP 1B projects are different, general advice and recommendations for those seeking to transition among STEP projects, and ample time for questions and group discussion. Participants should come prepared to share their own challenges, successes, and concerns.

Many unforeseen challenges and opportunities arose during the first year of this project's migration to the current MCCP model, some that persist into the second year. For example, challenges include those related to data collection mechanisms, the proposal's stated intent to serve underrepresented students, campus leadership, and simple human errors. Finding creative solutions required extensive discussion involving many stakeholders. Open and frank discussion will be promoted to assist participants as they develop their own STEP 1B proposals.