AC 2009-1485: DEVELOPMENT AND IMPLEMENTATION OF ACADEMIC ENRICHMENT ACTIVITIES FOR REU STUDENTS

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Development and Implementation of Academic Enrichment Activities for REU Students

Abstract

The Summer Undergraduate Research in Engineering/Science (SURE) Program was established in 1992 for the purpose of increasing the number of minorities attending and successfully navigating graduate school in the fields of engineering and science. The ten-week summer research program combines laboratory experiences with a series of weekly enrichment seminars and workshops. The seminar series and workshops augment the program objective to motivate students to pursue advanced degrees and research careers in science and engineering. In the last two years, the scope of the seminar/workshop series has broadened to include instruction in research skills, documentation and publication. While the seminars feature presentations by research engineers, the research skills workshops focus on instruction in three key areas: 1) communication, 2) investigation, and 3) documentation. In the second year of including research workshops, several additional components were added to the program. Components on publishing undergraduate research and a software tutorial were added to the 2007 program year activities in the area of documentation and preparation for graduate school was added as a new area. A "Research Tip of the Week" was also provided each week to compliment the key modules.

Approximately **73%** of the past participants are enrolled in a *graduate* program of study or received a MS degree and **34%** of the participants enrolled in a Ph.D. program from 1992-2005. Feedback from SURE participants is used to strengthen this successful program and increase the percentage of past participants seeking graduate education. Surveys were administered to SURE students at the beginning and conclusion of the summer experience for program assessment purposes. This paper will provide details on each seminar, showing how the additions to the research seminars increased positive ratings from student participants from the 2007 program year to the 2008 program year. By focusing on specific areas of research, providing concrete tutorials and hands-on activities to supplement the seminars, student participants increased their understanding and application of research skills, as well as their interest in attending graduate school.

Introduction

Undergraduate research experiences present a great opportunity to encourage undergraduates to pursue advanced degrees in science, technology, engineering, and mathematics (STEM) fields. Such research experiences not only expose the students to research, but also teach key research skills that are critical for success once in graduate school. A recent report by the National Science Foundation[1] on undergraduate research opportunities identified that "research experiences (have) a major impact on undergraduates' awareness, confidence, skills, and understanding regarding research, graduate school, and related careers." This impact occurred when the research experience was coupled with training in communication skills, research skills and mentorship from the research team. The SURE 2008 program incorporated all of these components through weekly enrichment seminars to complement the participant's research activities in order to maximize the overall benefit of the program.

This paper is divided into four sections: Program Overview, Enrichment Seminar Series, Assessment and Evaluation, and Conclusion and Recommendations. The program description describes the structure of the undergraduate research experience program. The development and implementation of the workshops to provide enrichment of the research experience is detailed in the Seminar Series section. The effectiveness of the Seminar Series and additions from the previous program year is detailed in the Assessment and Evaluation section. Finally, the Conclusions and Recommendations section offers suggestions for improvement and thoughts on how this model can benefit similar summer research programs.

Summer Undergraduate Research in Engineering/Science Program Overview

The Summer Undergraduate Research in Engineering/Science (SURE) Program was established in 1992 at the Georgia Institute of Technology to expose minority students to research in engineering and applied science, and to increase their interest in graduate study. Since the establishment of SURE in 1992, 373 students have participated in the summer program. The program is conducted in cooperation with the Colleges of Engineering, Sciences, and Computing and is funded by the National Science Foundation, Intel and Agilent. Key elements of the SURE program are presented to provide the reader with a knowledge-base regarding the organization of the SURE program[2].

- Ten weeks of research in engineering (electrical, aerospace, chemical, civil, computer, environmental, industrial, mechanical, or materials), science (physics, chemistry, biology, or mathematics), and electronics packaging
- Student participant pairing with both a faculty advisor and a graduate student mentor
- Weekly seminars on emerging research in engineering/science fields presented by faculty
- Weekly enrichment seminars to complement research activities
- A competitive monthly stipend as compared to that of a summer internship in industry
- Lodging, meals and a travel allowance for student participants
- Local industrial research site visits
- Oral and written research project summaries prepared by the student participants
- Social interaction between the student participants and their graduate mentors
- Program evaluation by the student participants

Enrichment Seminar Series

During the 2006 and 2007 SURE program years, the scope of the seminar series was broadened to include instruction in research skills, documentation and publication[3]. The research skills seminars focused on instruction in three key areas: 1) communication, 2) investigation, and 3) documentation. The SURE 2008 program year added components on publishing undergraduate research and a software tutorial in the area of documentation. Preparation for graduate school was added as a new key area, encompassing a "Research Tip of the Week" and "Weekly F.Y.I.s" to compliment the seminar modules. The implementation of the original three key areas was also modified to focus on the student's specific area of research, provide concrete tutorials and hands-on interaction. In advance of most seminars, students were strongly encouraged to prepare for the sessions with supplemental reading material, prepared questions or suggestions for discussion topics to enhance the effectiveness of the seminar series.

Communication Seminars

The Communication Seminar was split into two parts: 1) the 'elevator talk' and 2) networking for success. Minimal research is conducted during the first week of the program due to lab orientations and safety training. Thus, the Communication Seminar was conducted during the second week of the program. The aim of the Communication Seminar was to teach student participants how to concisely explain their research topics and how to network to make the most efficient use of their 10 weeks at the Georgia Institute of Technology.

In the business world, the 30-second elevator talk is a technique used to let people know who they are and why they might care. SURE students were given an elevator talk assignment to facilitate their own understanding of the research project on a lower level and as a means to open doors for networking. Duncan's[4] Denver Business Journal article on the elevator talk was adapted for the first part of the Communication Seminar. Students were required to compose elevator talks on their research projects for a hypothetical fifth grade audience. During this activity, each student presented their elevator talk to the other students and the SURE Program Coordinator, whom acted as the fifth grade audience. This activity provided the students with a general understanding of their research project and built confidence in their research communication skills prior to conducting their research experiments. Students were also required to present their elevator talks to their graduate student mentors and faculty advisors to obtain feedback. When developing the elevator talk participants were instructed to consider the knowledge and interest levels of the intended audience and to develop their message accordingly. The feedback obtained ensured that student participants understood, at the onset, the main goals and their role in the research project. Periodically throughout the summer, participants were asked to give their elevator talks at the beginning of the weekly enrichment seminars to gain feedback and so the SURE Program Coordinator could see how the elevator talks and projects were developing. Notes provided to the participants on the elevator talk are detailed in Fairley[3].

The second portion of the Communication Seminar was dedicated to networking. The importance of networking during the SURE program and while in graduate school was emphasized to the participants. The SURE Program Coordinator led a discussion on using networking to open up opportunities for research assistantships, scholarships and letters of

recommendation. The SURE participants were asked to set goals on their first day of the program with their graduate mentors. As an exercise to show the significance of networking, participants were asked to outline how networking could assist them in attaining those goals. Students privately identified people on campus they wanted to meet during the summer, what they had to gain and what they had to offer to the meeting. The SURE Program Coordinator facilitated initial introductions when requested and available, and periodically reminded the students to work on increasing their networks.

Investigation Seminars

The Investigation Seminars were split into two one hour workshops during the fourth and fifth weeks of the program. Workshop One focused on teaching participants how to conduct efficient literature reviews and then how to create an annotated bibliography based upon the literature review. In Workshop Two, the SURE Program Coordinator conducted an EndNote tutorial to complement workshop one and for students to obtain feedback on their literature reviews and annotated bibliographies.

During the workshops students were divided into groups based on their major to focus their talks to their research interests. During the first workshop, group discussions focused on how to synthesize many texts to follow a particular research theme and how to then describe and evaluate the text for an annotated bibliography. The students discussed potential problems with their literature reviews and ways to overcome the pitfalls. By organizing the students by major, the group dynamics allowed the participants to have more detailed conversations regarding their specific research projects. Participants were given materials from Writing at the University of Toronto[5] and the Purdue OnLine Writing Lab (OWL) [6] on conducting a literature review and creating an annotated bibliography, respectively. Notes provided to the participants on literature reviews and annotated bibliographies are detailed in Fairley[3].

The second Investigation Seminar was on EndNote, a web based software, used to manage and cite references in papers. It allows users to create detailed bibliographies, search for references and organize papers. The purpose of this workshop was to allow students to put their literature review and annotated bibliographies into action. Students were asked to bring their laptops and reviews to follow along. After the tutorial, participants were divided into groups by major to discuss their literature reviews, annotated bibliographies and work through EndNote while assisting each other. The SURE Program Coordinator also provided feedback to the students during this time.

The documents supplied to the participants for the EndNote Tutorial are located in Appendix A.

Documentation Seminars

The Documentation Seminars were split into two one hour workshops and conducted during the third and sixth weeks of the program, respectively. The aim of the Documentation Seminars was to teach the importance of proper record keeping and documenting to publish results. Workshop One was dedicated to teaching students how to formulate and maintain a research notebook. The second workshop focused on how to turn their summer research results into a publication.

Maintaining a research notebook helps students keep all of their research work in an organized form that parallels the process of their work. With their notebooks in hand, the SURE Program Coordinator led the discussion on methods for documenting student research findings and how to use the research notebook to identify, evaluate, reflect and refine their information collection process. Questions such as "Should I keep an electronic or paper notebook," "How often should I update my research notebook," and "What should I put in my research notebook" were addressed during the workshop. Notes provided to the participants on research notebooks are detailed in Fairley[3].

The second workshop on documentation was led by a former, SURE participant. The talk led the students through the former participant's process of turning his SURE research into a publication. The workshop highlighted the significance of reading previous literature to know the contribution of the work to the field, working diligently to produce and document results as well as telling a story through the work. The speaker emphasized that while it can be difficult to produce quality results in a ten-week time frame, networking within the research group can sustain the students collaboration on the work resulting in a publication. Notes provided to the students are located in Appendix B of the work.

Graduate School Preparation Activities

Since the purpose of the SURE program is to increase the number of minorities attending and successfully navigating graduate school in the fields of engineering and science, Graduate School Preparation Seminars were added to the 2008 program. The aim of this area was to provide participants with information and resources to alleviate the anxiety of applying for and getting into graduate school and assist them with successfully navigating the process.

Speakers were brought in to facilitate workshops on GRE preparation, funding graduate school and a graduate student panel. Throughout the program the SURE Program Coordinator provided the participants with a "Research Tip of the Week" and "Weekly F.Y.I.s" to supplement the enrichment seminars. The research tips were pieces of advice that are not often taught, but have shown to be beneficial to several of the SURE graduate mentors. The "F.Y.I.s" served as resources for assistance with graduate school admissions, funding, graduate school preview weekends, and undergraduate conferences. The "Research Tip of the Week" provided to the students is located in Appendix C of the work.

Table 1displays a summary of the 2008 SURE Program Logistics, Enrichment Seminars, and Assessment. SURE participants submitted a written report and presented a final oral research presentation where they were encouraged to utilize the skills acquired from the research enrichment seminars. Most students opened using their elevator talks and concluded by mentioning their interests in maintaining the relationship with their research team.

Week	Seminar	Activity
1	Program Assessment and Logistics	SURE Program Orientation/Lab Safety Training/Pre-Program Survey
2	Communication	Elevator Talk Workshop 1 and Networking
3	Documentation 1	Creating and Maintaining a Research Notebook
4	Investigation 1	Conducting Literature Reviews & Creating an Annotated Bibliography
5	Investigation 2	EndNote Tutorial
6	Documentation 2	Publishing Summer Research
7	Graduate School Preparation 1	GRE Preparation
8	Graduate School Preparation 2	Funding Graduate School
9	Graduate School Preparation 3	Graduate Student Panel
10	Program Assessment	Oral Research Presentations/Written Report Submissions/Post-Program Survey
1-10	Graduate School Preparation 4	Research Tip of the Week and Weekly F.Y.I.

Table 1: SURE 2008 Program Logistics, Enrichment Seminars and Assessment Schedule

The Enrichment Seminar Series aimed to first teach communication because quality research that can not be effectively communicated to varying audiences is useless. Next, the enrichment series taught the process of investigation and documentation in research and useful tools to complement these skills. Undergraduate research has been shown to be an effective approach to motivate minority students to pursue graduate degrees in STEM fields, by alleviating uncertainty and building confidence[2, 7], thus the seminars on graduate preparation were added to assist with the participant's readiness for graduate school.

Assessment and Evaluation

Program evaluation was accomplished through on-site pre- and post surveys with 26 (in Appendix D) and 37 questions (in Appendix E), respectively. The SURE Assessment Director administered the pre-program survey to the 26 student participants during the first week of the program (week 1) at the orientation session. This survey is a tool to learn more about student expectations for the program and their attitudes about graduate education. The SURE Assessment Director administered the post-program survey to the 26 student participants during the last week of the program (week 10). The post-survey provides data for both quality improvement purposes and for monitoring student attitudes about graduate school after the SURE experience.

In the 2008 post-program survey, 26 SURE participants were asked to rate the quality of specific program components using a scale of Excellent, Good, Fair, and Poor. Quality rating results were obtained from the questions highlighted in grey on the post-program survey (Questions 15, 17, 18, 20, 21, 22 and 23 in Appendix E). The responses to these questions are found in Table 2. For presentation purposes, "excellent" and "good" responses were combined and represent a "Positive Rating" for the seminar, and "fair" and "poor" responses were combined and represent

a "Needs Improvement Rating" for the seminar. Participants also responded on whether the SURE program strengthened their understanding of graduate school and enhanced their desire to attend graduate school (Questions 29 and 30 in Appendix E).

Research Skills Seminar N=26	**Positive Rating** (Excellent/Good)	**Needs Improvement Rating** (Fair/Poor)	**No Response Rating**
Elevator talk (Communications Seminars)	92.3%	7.7%	0%
Literature review &Annotated Bibliography (Investigation Seminars)	76.9%	23.1%	0%
EndNote Tutorial (Investigation Seminars)	61.6%	26.9%	11.5%
Research notebook (Documentation Seminars)	84.6%	15.4%	0%
Turning Summer Research Into Publication (Documentation Seminars)	80.8%	11.5%	3.8%
Research Tip of the Week (Graduate Preparation Seminar)	88.5%	11.5%	0%
Weekly FYI (Graduate Preparation Seminar)	88.5%	11.5%	0%

Table 2: Quality rating results of the Research Skills Seminars obtained from the post-program survey for the 2008 SURE program year.

The highest percentage of positive ratings were received from the elevator talk, research tip of the week, and weekly F.Y.I.s with 92.3%, 88.5% and 88.5% respectively (shown in bold in Table 2). These workshops were a part of the Communication and Graduate Preparation Seminars. It is also noted that all of the components that were kept from the SURE 2007 program year, increased in positive ratings for the SURE 2008 program. The overall increase in positive ratings for the SURE 2008 program suggest that participants benefited from the focus on their specific areas of research and hands-on interaction throughout the weekly enrichment seminars. Table 3 shows the ratings from the SURE 2007 post-program survey for the research skills seminar.

In contrast, the EndNote tutorial was not as favorably received from the participants. The tutorial received a positive rating of 61.9% and needs improvement rating of 26.9%. The format of the tutorial to have participants follow along with laptops and then break into groups may not have been the best learning environment for the students given their initial comfort level with EndNote.

The post-program survey also asked participants to answer questions regarding their thoughts about attending graduate school and the life of a graduate student. One of the most significant findings was that 84.6% of the SURE participants agreed with the statement: "SURE experience increased my desire to attend graduate school." In addition, 76.9% of the participants responded that the SURE program "significantly enhanced (their) understanding" of the college life of a graduate student.

Research Skills Seminar N=27	**Positive Rating** (Excellent/Good)	**Needs Improvement Rating** (Fair/Poor)	**No Response Rating**
Elevator Talk (Communications Seminars)	89%	11%	0%
Literature Review & Annotated Bibliography (Investigation Seminars)	70%	30%	0%
Research notebook (Documentation Seminars)	78%	19%	1%

Table 3: Quality rating results of the Research Skills Seminars obtained from the post-program survey for the 2007 SURE program year.

Conclusion

The SURE program provides participating undergraduates the opportunity to conduct research, collect and/or analyze data, deliver an oral presentation describing their research project and results, understand how their work fits into the "bigger picture" of the field, and receive training in advanced research skills. The 2008 Enrichment Seminar Series ensured that throughout that process, the participants were able to communicate, investigate, and document their work and research findings properly while gaining preparation for graduate school.

The post-program survey results show positive ratings for the additions to the research enrichment seminars. Further assessment is needed to determine if the ratings for the EndNote tutorial were due to the way the workshop was conducted or if students were already familiar with the material. The "Needs Improvement Rating" was reduced for each area when compared to the SURE 2007 program, but further analysis should be carried out to determine how to further reduce this response. A comment-based survey that inquires why participants answered in certain ways would assist the SURE Program Coordinator in developing seminars to meet the student's needs in the future. Also, inclusion of the faculty advisor's assessment of the enrichment activities towards enhancing the student's research performance would assist in tailoring the enrichment seminars.

It is anticipated that the work presented will be incorporated into other minority summer undergraduate research programs to assist in increasing the number of minorities attending and successfully navigating graduate school in the fields of engineering and science. Also, even though programs like SURE positively influence students to attend graduate school in the fields of engineering and science, further analysis should still be carried out to develop and evaluate the content of these programs, in addition to the research components.

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Appendix A: EndNote Tutorial

SURE Research Activity

Week 4

EndNote Tutorial

Purpose of End Note

- To search for literature
- Develop a personal library of references
- Create and format citations for papers and publications

Creating an EndNote Library

To create an EndNote library:

1. Choose New from the EndNote File menu.
2. Enter a name for your new library.

3. Choose a location for the library using the “Save in” list.

4. Click Save. EndNote library filenames are automatically given the extension .enl (for EndNote Library). The filename you enter appears in the top left hand corner or center of the window (It depends if you are using a Mac or Windows-based computer). At the bottom left corner of the window, the words "Showing 0 out of 0 references" indicate that your new EndNote library is empty.

Adding References to a Library

There are three ways to add references to an EndNote library:

1. adding references manually
2. using EndNote's direct connection feature to search remote databases
3. importing references from saved database searches

Opening an EndNote Library

When you first start EndNote, a dialog box appears that allows you to open a reference library. Choose "open an existing library" and browse to the library you want to open. You can also open a library from within EndNote by choosing Open from the File menu.

The top part of the EndNote screen includes menu headings, a toolbar, a box showing the current output style, and a help icon.

The library window displays a list of references in the library, with each reference displayed in

one line. Across the top of the window are column headings, which by default are Image, Link to pdf, Author, Year, Title, Journal/Secondary Title, Reference Type, and URL.

At the bottom the library window, the status bar shows the number of references displayed and an area to click to show or hide a reference preview.

Selecting an Output Style

Output styles allow you to easily change the format of your references. Output styles define the formatting of in-text citations, footnotes, and bibliographies. The easiest way to select an output style is to use the output styles dropdown menu on the left or right side of EndNote's main toolbar (It depends if you are using a Mac or Windows-based computer).

Sorting, Finding, and Viewing References

Sorting the References List

You change the order in which references are displayed by clicking on the column headings. If you click on the same heading twice, the references will be sorted in reverse order.

Finding and Previewing References

To find a reference, you can:

- scroll through the list by using the arrow keys on your keyboard or by using the scroll bar, or
- type the first few letters of the field by which the library is sorted. For example, if you clicked the title heading to sort the library by title, type the first few letters of a title to find that reference.

Viewing a Reference

To view the complete reference, double-click on its line in the library, or click and press Enter. The Reference window appears. The Reference window allows you to view, enter, or edit information for a reference.

What is Cite While You Write?

Cite While You Write (CWYW) is a key one of the most valuable tools of EndNote. CWYW allows the user to access EndNote from Microsoft word to insert citations into documents. Citations can be inserted and modified at any point during the writing process. CWYW can also be used to insert images (figures) from an EndNote library into Word documents.

CWYW automatically builds a bibliography from the citations inserted and is capable of creating a list of figures.

Inserting Citations

You can insert citations as you write your document ("cite while you write"), or if you prefer you can wait and enter the citations after you finish writing.

To insert citations:

1. Open the EndNote library you want to use. Then open your Word document. You can also set EndNote to start when you open Word.

2. In your Word document, position the cursor where you want to insert the first citation.

3. Do one of the following:

- From the Word Tools menu, choose the EndNote submenu, and click on Find Citation(s); or
- If the EndNote toolbar is showing, click on The EndNote Find Citations dialog box appears.

4. In the dialog box, enter text (such as the author or title) in the Find text box to identify your reference.

Modified from: http://www.hsl.unc.edu/Services/Tutorials/ENDNOTE/CWYW.htm

Appendix B: Turning SURE Research Into A Publication

SURE Research Activity

Week 4

Turning SURE Research Into A Publication

1. Select a project that interests you
2. Read, read, read the literature
3. Work diligently to produce valuable results
4. Target a conference or journal
5. Write up your results as you go along considering the story you want to tell
6. Write and submit

Where To Target for Submission?

1. Peer-reviewed publication
2. Professional Societies: IEEE, ASME, APS, AIAA, etc.
3. Conference or Journal Paper?
4. School symposia
5. Nature, Science…

Appendix C: Research Tip of the Week

Research Tips of the Week

Research Tip of the Week: Week 2

Graduate school and research can be very unstructured. Add structure by setting weekly, monthly and semester goals. Consider setting specific hours to work in your lab and at home on your research project.

Research Tip of the Week: Week 3

Read at least 1-2 papers a week. Take thorough notes to summarize major questions of interest to refresh your memory later. This will prevent you from having to re-read the paper later. It will also assist you with learning your area and later writing your final paper.

Research Tip of the Week: Week 4

Consider having "think tanks" with colleagues to bounce ideas off each other. Several people use the same general techniques to apply to different applications. The "think tanks" can serve to keep you abreast of current research and brainstorm ideas for your research project.

Research Tip of the Week: Week 5

A part of doing research is building competencies. You may not always see the benefit of learning or reading something that is not directly related to your project, but at the end of your tenure you want to answer the question, "What skills do I have now that I didn't have before I started this project?"

Research Tip of the Week: Week 6

Use conference deadlines as a means to set milestones for your research progress. This will assist you with tracking your progress and help to ensure you are on target.

Research Tip of the Week: Week 7

Do not blindly accept your results when performing research. Questioning whether your findings are true will help you find potential gaps in your work and increase your understanding of the context of your research.

Research Tip of the Week: Week 8

When selecting a research topic don't try to "reinvent the wheel." Read the future work section of your peers' dissertations to get ideas for your project. There are several questions waiting to be answered!

Research Tip of the Week: Week 9

The first definition of research to come up on the site dictionary.com is "to search or search for again." The key part is to "search for again". As with life, in research you will have to continuously search for what you are looking for and it may take time. As Albert Einstein said, "If we knew what it was we were doing, it would not be called research, would it?"

Appendix D: Pre-Program Survey

SURE 2008
Summer Undergraduate Research in Engineering/Science
Pre – Program Survey

Name:

Class Standing in Fall 2008	Major area of study
Name of undergraduate institution	

Based on experience in undergraduate school, do you have a particular research interest area? If so, please specify that interest.

	None	1	2	3	Over 3	N/A
In addition to SURE, to how many other summer 2008 undergraduate research experience programs did you apply?						
In addition to SURE, at how many were you accepted?						
In addition to summer research experience programs, to how many other summer programs did you apply?						
At how many other programs were you accepted?						

Was the SURE your first, second, third or other choice for your summer program?	I did not apply elsewhere	1st choice	2nd choice	3rd choice	Other

At this point in your academic career, which **one** statement best describes your thoughts about attending graduate school?	
	Please check only one response
I plan to attend graduate school in the next year or two	
I probably will attend graduate school, but not 100% sure	
I have not made any decisions about graduate school	
I probably will not attend graduate school	
I do not plan to attend graduate school	

There could be several reasons that you decided to attend SURE. For each reason listed below, please indicate if you consider it a primary or major reason for attendance, a secondary reason or not a reason to attend at all.

	Primary reason	Secondary reason	Not a reason
To pursue a particular research interest			
To learn more about graduate school in general			
To gain more exposure to the university			
To decide if I want to attend grad school at this university			
To decide if I want attend grad school at all			
To have something to do in the summer			
To learn new skills			
To enhance my resume for job possibilities			

How important to you are each of the following SURE program components?

	Extremely important	Moderately important	Minimally important	Not at all important
Working with a graduate student mentor				
Having exposure to research faculty members at this university				
Working at this university's research facilities				
Earning a summer stipend				
Attending seminars on state-of-the art topics				
Attending seminars on technical writing (research proposals, log books, etc)				
Visiting local industrial centers				
Going on group social outings (concert, play, etc)				

Appendix E: Post-Program Survey

Findings – End-of-Program Evaluation
Summer Undergraduate Research in Engineering/Science (SURE)
Summer 2008

Quality ratings of each component:

N varies for each question – Total n for exit survey = 26	Excellent	Good	Fair	Poor	N/A
1. SURE housing arrangements					
2. Assistance with travel arrangements to Atlanta					
3. Assistance with travel arrangements from Atlanta					
4. Clarity of SURE program objectives					
5. Overall SURE program organization					
6. Helpfulness of SURE mentor					
7. Assistance with research from faculty advisor					
8. Guidance with research from lab graduate student(s)					
9. Availability of graduate student(s) from your lab					
10. Helpfulness of the program coordinator (Ashley Johnson)					
11. Helpfulness of the program director (Leyla Conrad)					
12. Clarity of research project objectives					
13. Experience gained from research project					
14. Quality of research facilities used for my project					
15. Elevator talk (enrichment activity)					
16. Graduate panel (enrichment activity)					
17. Lit review & annotated bibliography (enrichment activity)					
18. Research notebook (enrichment activity)					
19. Preparing for GRE (enrichment activity)					
20. EndNote Tutorial (enrichment activity)					
21. Turning summer research into publication (enrichment)					
22. Research Tip of the Week (enrichment activity)					
23. Weekly FYI (enrichment activity)					

24. Funding your graduate career (enrichment activity)					

For each question, please check <u>one</u> response to indicate your answer.

In terms of the SURE activities, please indicate if the frequency of each of the activities listed below was about right, too many, too few, or the activity should be eliminated from the program.

	About right	Too many	Too few	Eliminate this activity	Not applicable
24. Seminars on state-of-the art topics					
25. Visits to local industrial centers					
26. Group social outings					

27. In order to complete the objectives of the SURE program, do you think the length of the program was about right, too long or too short?

	About right
	Too long
	Too short

28. To what extent did your research project strengthen your overall learning experience while in the SURE program?

	Significantly strengthened learning experience
	Moderately strengthened learning experience
	Minimally strengthened learning experience
	Did not strengthen learning experience

29. To what extent, if any, did your experience in the SURE program enhance your understanding of the college life of a graduate student?

	Significantly enhanced my understanding
	Moderately enhanced my understanding
	Minimally enhanced my understanding
	Did not enhance my understanding either way

30. In which <u>one</u> of the following ways did your SURE program experience impact your thoughts about attending graduate school?

	SURE experience had no impact either way
	SURE experience increased my desire to attend graduate school
	SURE experience lessened my desire to attend graduate school

31. In your opinion, was the amount of the stipend appropriate given the program?

	Amount was appropriate
	Amount was too high
	Amount was too low

32. How likely would you be to consider attending graduate school at this university in the near future?

	Very likely (strong consideration)
	Somewhat likely (considering the possibility)
	Not likely (still possible)
	Not at all likely (no way)

33. In which <u>one</u> of the following ways did your SURE program experience impact your thoughts about attending graduate school at this university?

	SURE experience had no impact either way
	SURE experience increased my desire to attend graduate school
	SURE experience lessened my desire to attend graduate school

34. Would you recommend the SURE program to someone you know with similar interests?

	Would strongly recommend SURE
	Would probably recommend SURE
	Would not recommend SURE

35. What one suggestion would you make to improve the SURE experience?

36. What would you say is the major strength of the SURE program?

37. Below is a list of SURE program activities. How effective was each of these activities to develop a connection between you and your social mentor?

	Very effective	**Moderately effective**	**Not effective**	**Not applicable**
SURE mixer/pizza party (orientation day)				
Cookout at President's Glade for REU students				
Georgia Aquarium outing				
Social Fest at GT student center				
Six Flags Day				

38. Looking at this same list of SURE program activities, how effective was each of these activities to develop a sense of community among SURE student participants?

	Very effective	**Moderately effective**	**Not effective**	**Not applicable**
SURE mixer/pizza party (orientation day)				
Cookout at President's Glade for REU students				
Georgia Aquarium outing				
Social Fest at the student center				
Six Flags Day				

Thank you again for completing this assessment component of the 2008 SURE Program.