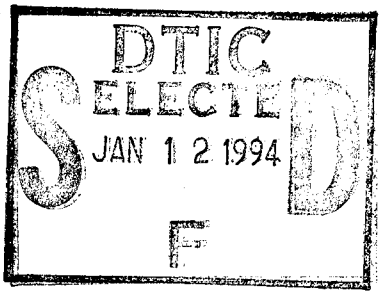
Xavier University of Louisiana

FUTURE SCIENTISTS PROGRAM

SUMMARY REPORT



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Xavier University of Louisiana
FUTURE SCIENTISTS PROGRAM REPORT
(August, 1989 - September, 1994)

Introduction

This document provides information on the ONR sponsored Future Scientists Program at Xavier for the period August, 1989 - September, 1994.

The primary objective of the ONR sponsored Future Scientists Program is to prepare and nurture selected Xavier students who are interested in and committed to the pursuit of graduate studies in science and engineering. Some of the areas of science that are focused on in this program include Chemistry, Mathematics, Physics, and Computer Science and Engineering.

As the program completes the fifth year of operation, the principal activities involved faculty mentoring, undergraduate research, seminar presentation and graduate school placement of participating students. The final three (3) participants were selected during the summer of 1993. As set forth in the recruitment plan, the final selectees were engineering majors, each of whom had completed their freshman year of studies with grade point averages in excess of 3.00.

A significant outcome of this program at the University has been the ripple effect resulting in the formation of at least three similar programs (Table 1) with virtually identical missions, distinguished primarily by academic major focus or other constraints related to specific graduate schools. In addition, 63% of the participants who have graduated are now pursuing graduate study. While this is significantly below our target of 95%, most of those who have chosen to go directly into the work force are professionally employed, and did so more for economic reasons than a lack of commitment to graduate study - which most still say they intend to pursue.

Table 1: ***Future Scientists Related Graduate School Preparation Programs***

	Funding Source	Academic Areas	Participants	Grads	Grad Sch.
Future Scientists	Office of Naval Research	Chem., Comp. Sci., Engr., Math., Physics	32	16	10
EE Just	William Penn Found.	Bio., Chem., Comp. Sci. Engr., Math., Physics	49	18	13
RCMS	National Science Found.	Chem., Comp. Sci., Engr., Math., Physics	26	*	2
GE Scholars	General Electric	Comp. Sci.	6	2	2

** Dual Degree Graduate program with the University of New Orleans*

An additional important outgrowth of the program has been the initiation of a model Mentoring program that has brought students and faculty together into a positive and productive relationship built around the research activities of the faculty. The conceptual model of this

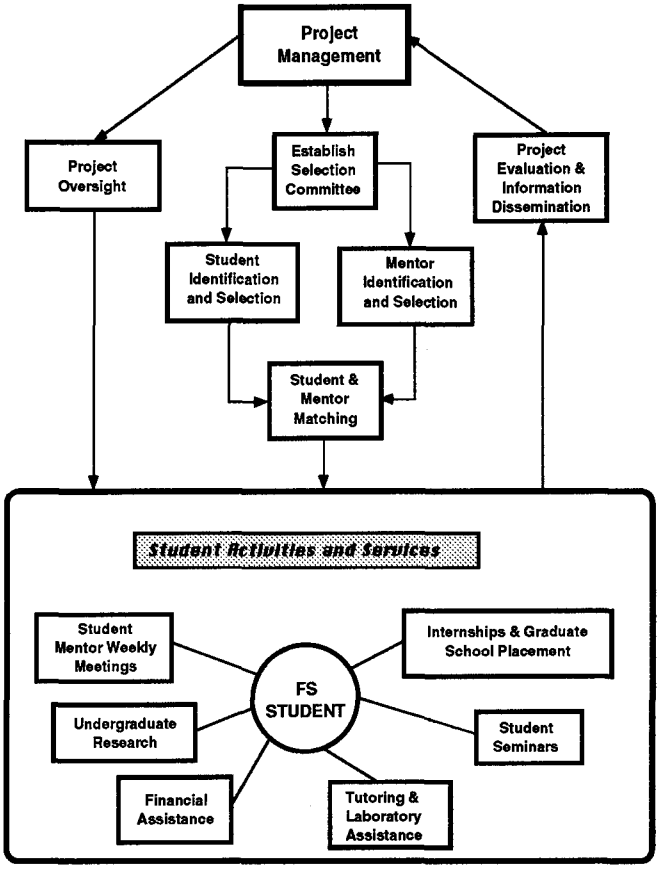
component of the program is also being utilized in other programs in the University. The Mentoring component has probably been the single most important factor in developing and maintaining the participants focus on graduate school.

Program Model

During the past five years, Xavier has attempted to develop a model program that could be replicated beyond the University. It is being effectively modeled within the University through the EE Just, GE Foundation and RCMS programs. In developing this Model to prepare students for graduate school, several program components were implemented to ensure student continuance and success in the program. These components shown in the graphic representation of the Model (Figure 1) include the following:

- a special student selection process
- faculty mentoring
- undergraduate research
- financial assistance
- academic and career counseling
- graduate school preparation and placement assistance

Figure 1: Xavier Future Scientists Program Model



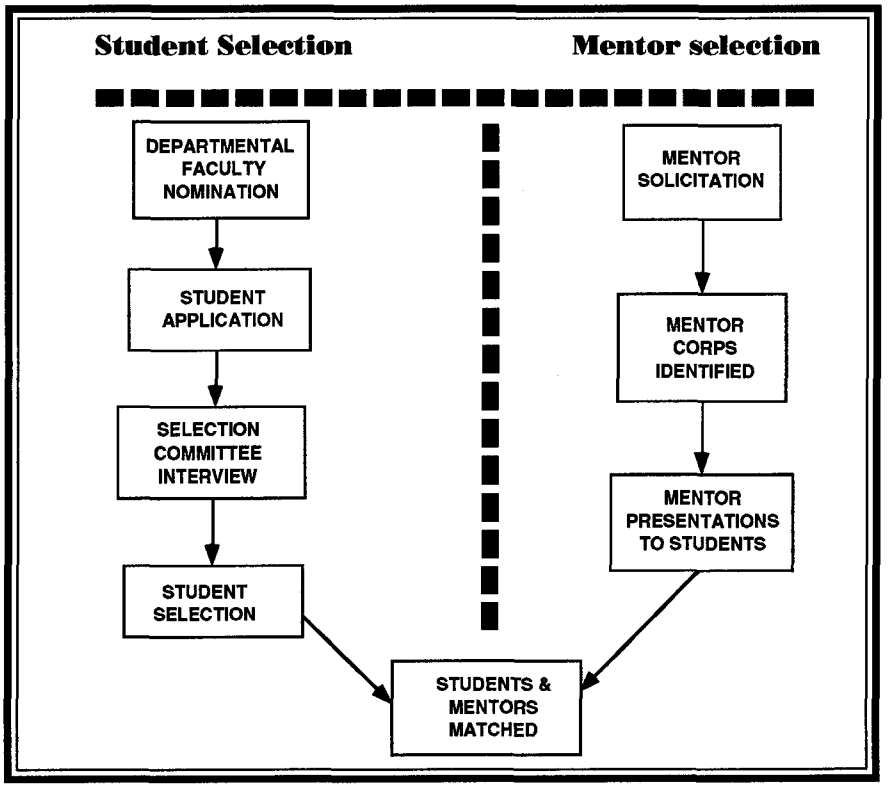
In the discussion that follows, a more detailed description will be provided on several of the major components of the Future Scientists Program Model illustrated above. It should be noted however, that the Model is continuing to evolve within the framework of the strengthening or optimizing the effectiveness of selected program components.

Student Selection

To be selected for participation in the Program, students have had to satisfy certain specific criteria and agree to involvement in the application and interview segments of the selection process (Figure 2).

To begin the selection process, faculty in the participating academic departments identified those students that had the appropriate cumulative grade point averages (GPA) and who they believe were seriously interested in, and capable candidates for the pursuit of graduate studies.

Figure 2: ***Student and Mentor Selection Process***



The names of those students selected by their respective departments were then submitted for nomination to the selection committee. Subsequent to the student's completion of an application they were then invited to interview with the selection committee. The selection committee interviewed each student individually, making its selections on the basis of the students' academic backgrounds and their response to a series of questions directed to them during the interview process.

With the exception of the last three entrants into the program, all of the previous participants were subjected to the aforementioned process. The last three entries, all engineering majors, were selected by the department chair and the program director since the selections were made in the summer and only involved engineering students.

Mentor Selection

Mentors were selected through a process much like that of the students (Figure 2 above). Once the number and majors of students eligible for participation in the program had been determined, department chairs in the relevant departments were solicited for faculty candidates to serve as mentors. Those faculty who were recommended or who volunteered were required to make an approximately 5 minutes presentation on the nature of their research to the prospective student participants.

Subsequent to the faculty presentations, students and prospective mentors were encouraged to meet to determine if they had sufficient common interests and were otherwise adequately matched to provide for a productive relationship. When the student and mentor had agreed to collaborate, this information was then reported to the Mentoring Coordinator (Dr. Harold Vincent) who then monitored the working relationship on a monthly basis. At any time during the school term that difficulties developed, either the mentor or the student could seek out the Coordinator for consultation or mediation of the circumstances. If difficulties could not be resolved, the Faculty/Student team was dissipated and the process to select a mentor for that student was re-initiated.

The constraints of the program required that students interact on an average of 10 hours per week with their mentors. This interaction could have included research activities, the student assisting in the administering of a science laboratory and/or performing tutoring duties in one of the designated tutoring programs. In addition, students were expected to pursue research or other technically relevant experiences during the summer.

The topics and level of complexity of work in which students were engaged during the research experience was determined through a one-on-one interview with the prospective mentor during the mentor selection process. Once the choice of mentor and research area were mutually agreed to by student and prospective faculty, the student began to serve as a research assistance and the faculty as research supervisor and mentor. The initial work of the students was based on their previous University experiences and academic standing.

Mentoring

The mentoring component of the program provides an opportunity for participating students to work with faculty in the performance of research in which that faculty may be involved. In a limited number of instances, students are allowed to serve as teaching assistants to faculty in certain science laboratory classes or supplement their research with a limited tutoring assignment.

In addition to the research component, mentoring support is also provided by the Graduate Placement (GradStar) office, the Project Director and faculty advisors to the students in regularly scheduled weekly and monthly meetings. Some of the activities included in the total mentoring component include:

1. Advising and assisting students in their preparation for graduate school (including GRE preparation, and the application process);

2. Identification and selection of schools with research interests similar to those of the students;

3. Identification of, and application for financial assistance packages for graduate school; and

4. Identification and selection of summer research internships.

Participants

The selection of Science, Engineering and Mathematics students for the program is carried out consistent, to the maximum extent possible, with the selection schedule shown in the original proposal. Some deviations from the selection process have occurred because of the lack of availability of qualified candidates in certain majors (particularly Chemistry and Physics). However, the overall breakdown between mathematics, engineering and science majors has been more closely maintained (with 3 engineering/3 other science majors), as has been the total number of persons selected per year. Table1 in the appendix provides some details regarding the status of all participants in the program.

There have been 32 students to participate in the program since its inception compared to the 27 originally projected. The participation of 5 additional students was made possible as a result of some selectees having an advance status beyond the freshman year when selected (thereby reducing overall program costs for them), and two of the participants were supported, in part, by a grant from the National Security Agency.

Internships

As an integral part of the Future Scientists program, participants were encouraged, and assisted where possible, in the pursuit of summer internships that with the intention of complementing their academic and research experiences at Xavier. Table 5 in the appendix provides a listing of student Internship sites during the first five years of the program. Since summer research internships will be a major focus in the continuation phase of the program, the previous record of experiences will be used as baseline data in evaluating future program performance in the selection and placement process (of students in summer research opportunities).

Curriculum Development

An additional components of the Future Scientists program included the development of new courses and/or the development of Special Topics in existing courses. The following Table 4 lists some of the courses or subject areas affected by this program.

Table 2: ***New Courses/Special Topics***

Department	***Faculty***	***Subject***
Computer Science	Akhtar Jameel Atul Kumar Hamid Jafari	Distributed Processing Artificial Intelligence
Physics/Engineering	Dr. Murty Akundi	General Physics Drill Sessions
Mathematics	Dr. Esther Fontova	Honors Calculus I & II

Information Dissemination

This is the area of the overall program which has experienced the least activity, particularly as relates to a Newsletter. This has not been for a lack of items on which to report, but more because of constant changes in personnel and the lack of staff time and talent to put together a consistent newsletter. Nevertheless, occasional items have been reported for publication in the University Publication "This Week At Xavier". To overcome this stalemated condition, an attempt was made to obtain the talents of an advanced student major in Communications to specifically collect and publish information on the several programs operating under the umbrella of the Dual Degree Engineering program. This proved futile when the student's schedule, their focus on graduating, and lack of understanding of the program proved to be more a burden than a relief. Future efforts will involve the designation of a staff person with the specific responsibility to assemble the communications and the requirement of support by others to systematically and periodically submit information essential to the process.

The more active area of Information Dissemination involving student seminars has continued with a substantially higher degree of success. This success has been realized as a result of a decision to hold the seminars at the end of each semester with all students having to make a presentation at one of the two sessions. All program participants were required to attend - including all Mentors whether or not they were making presentations. This decision had the result of eliminating class schedule conflicts and also gave new students more time to have an experience of substance on which to report before they had to make a presentation. Scheduling the Seminars on Saturdays also gave an opportunity for a couple of parents to sit-in on the presentations.

Program Management Structure

The Future Scientists program is administered by the Director of Engineering Programs. He is assisted by faculty who serve as mentors of participating students, and as members of the selection committee. In addition, a senior member of the Physics faculty (Dr. Harold Vincent) serves as the coordinator of the Mentoring program.

The Selection Committee is composed of faculty representatives from the affected departments and the Dean of the College of Arts and Sciences, the Director of the GradStar Program and the Project Director. This committee meets once a year to select participants for the program. Most members of this committee also serve as members of a faculty advisory committee which counsels the Project Director regarding program operation.

Program Evaluation

Factors that have probably contributed most to the success of the mentoring and project retention efforts include the following:

- *the selection process which permits both student and mentor to have input into the final pairings;*
- *the requirement on the student of 10 hours per week on their research project;*
- *the requirement that students have contact each week with their mentor;*
- *the availability of a senior faculty member to serve as coordinator for the mentoring program. Not only does this person supervise the matching of student and mentor, he is also responsible for mediating any difficulties or conflicts between the mentor and the student;*
- *the accessibility of the program director to the students for additional academic and career counseling;*
- *the services of the GradStar office to assist students in making their detail arrangements for graduate school (all participants are required to sign-up with the GradStar office).*
- *the leverage for the Program Management, and the relief from financial difficulty allowed by the financial support which is provided to both the students (approximately $3,500/year) and the mentors ($1,000/student/semester).*

Factors Tending to Reduce Program Effectiveness

At this stage of the initial 5-year program, several students have not followed through in

enrolling in graduate school upon completion of their undergraduate degree program. In attempting to identify some of the reasons for this failure, several factors have been cited (by students), and noted (by the Project Management), as having impacted on the students' decisions not to continue to graduate school. These have included the following:

- Changes in family status (marriage and child) that has delayed if not permanently derailed the process.
- Stronger desire to enter professional employment (strengthened by a high level of pressure from corporate recruiters).
- Misreading of students' motivations and intents by the Selection Committee coupled with the students' lack of understanding of expectations and obligations of research work and graduate study. The program helped them (the students) sort these issues out - obviously to some detriment of program outcome.
- Some (most) of those who have not enrolled in graduate school have indicated that this represents a delay and not an intent to forego the process entirely.

Areas for Improvement

As the program has developed, the enhancement of several components of the model have become increasingly important to achieving the success expected in the program. One of these components is the summer internships in research-oriented environments. There is an obvious need to strengthen this important element since it can serve both to enhance the student's technical preparation and financial position, in addition to reinforcing the efforts to have them pursue graduate studies. Another area that also needs strengthening is that of activities that encourage group identification. If properly configured, it is expected that these activities will also serve as a reinforcing element in the efforts to maintain the student's focus on graduate study.

An additional strategy involving the financial assistance package may need to be developed to serve as a further inducement for students to proceed directly to graduate school upon completion of their undergraduate studies. This strategy will have to take into account student's 'academic fatigue', loan obligations incurred during undergraduate study and possible alternative employment/ graduate study options. In an effort to begin understanding the motivations of prospective program participants and any additional factors that need to be looked at in the selection process, a survey of past participants was taken. A copy of the survey and the results are provided in the appendix. This information will be used, where appropriate, in finalizing the selection process for the next phase of the program.

Other Notes and Conclusions

At this five year point in the program, seven (7) of the eleven students (64%) who have

achieved their undergraduate degrees have entered directly into graduate degree programs and are currently enrolled in academic areas akin to their undergraduate majors. Three (3) program participants have 'temporarily' strayed from the graduate school path - having initially opted to enter professional employment upon receiving their undergraduate degrees and one (1) who started graduate school has temporarily withdrawn for personal/family reasons. All of those still enrolled in undergraduate study are progressing satisfactorily toward graduation and their anticipated enrollment in graduate school. However, as noted above, efforts will be reinforced to develop greater assurance that a larger percentage of those remaining will proceed directly to graduate school upon completing their undergraduate studies. It is further noted that each of those who have graduated and chosen the employment option were/are academically eligible to pursue graduate study and could conceivably do so at any point in the future (as some have expressed an intent to eventually do).

In preparation for the follow-on program over the next three years, a survey was taken of students who participated during the first five years of the program. The intent was to gain some insight into the students initial expectations of the program, the degree to which those expectations were realized, and progammatic strategies that might help to improve the program. A copy of the survey with a summary of the results are provided in the Appendix to this report. It should be noted that many of the students' concerns were reflected in the continuation grant proposal and program modifications will be implemented during the ensuing operation of the extended program.

In summary, the Future Scientists Program is still successfully pursuing its primary objective of preparing a select group of students for graduate study. It is serving as a model for other spin-off programs in the University including the EE Just Graduate Preparation program funded by the William Penn Foundation and the RCMS program funded by the National Science Foundation. It is also serving as thebase model on which a proposed "Model Institutions for Excellence" project funded by the National Science Foundation is being developed.

APPENDIX

Table 1: Future Scientists Program
Student Status

Name	1st Yr	Major	XU GPA	ACT	SAT	Current Status	Degrees Received	Current Mentor	Former Mentor	
Arika Anderson	92-93	Math	3.83	19	840	GS--Purdue	BS in Math--XU'94		Dr. Palfrey	
Estella Bonilla	91-92	PHYS	3.69	29	1150	Senior		Dr. E. Eschenazi		
Sydney Boone	89-90	ME	3.69	25	970	Employed: Amoco, NOLA	BS in Phys--XU'93 BS in ME--GA Tech'93		Dr. E. Eschenazi	
Blanks Branick	91-92	CHEM	3.48	24	1030	Enrolled--Lane College,TN			Dr. C. Klein	
Dwana Bush	93-94	ChE	3.41	23		Junior		Dr. E. Eschenazi		
Raymond Cain	90-91	CHEM	3.14		890	Enrolled--U of Houston			Dr. M. McLean Dr. J. Rudra	
Raquelle Chretien	91-92	GeoE	2.49	28	1020	Sophomore		Dr. J. Rudra		
Tiffany Cockerham	90-91	CS	3.65	21		Employed: IBM, NC	BS in CS--XU'93		Mr. A. Kumar	
Elodia Cole	91-92	TextE	3.69	25	990	ES--GA Tech			Dr. J. Rudra	
Dawn Davis	89-90	EE	4.00	25	1050	GS--GA Tech	BS in Physics--XU'92 BS in EE--TU'92		Dr. M. Akundi	
Stephanie Deajon	93-94	ChE	3.15	23	1000	Sophomore		Dr. R. Effiong		
Imani Dennis	92-93	ChE	3.53	28	1150	ES--Tulane		Dr. Palfrey	Dr. J. Rudra	
Raymond Duplessis	91-92	EE	3.46	27	1230	ES--Tulane		Dr. M. Akundi		
Iris Eagleton	91-92	Math	3.84	19	760	GS--U of Maryland	BS in Math--XU'93		Dr. D. Westwood	
Tracy Evans	90-91	Chem	3.89		880	MS--NYU Med Sch	BS in Chem--XU'93		Dr. M. McLean	
Harold Foley	89-90	CS	3.66		920	GS--Tulane	BS in Math--XU'92		Dr. H. Jafari	
Autumn Gardner	91-92	Math	3.86	21		Employed: St. Mary's Academy	BS in Math--XU'92		Dr. G. Dial	
Carlisa Harris	89-90	ChE	3.90	27	1140	GS--U of Houston	BA in Phys--XU'94 BS in Chem(ACS)--XU'94 BS in ChE--TU'94		Dr. M. Akundi	
Michael Henderson	92-93	ME	3.33		970	ES--GA Tech			(Dr. E. Eschenazi)	
Anissa Irvin Vines	92-93	Stat	3.93	21	910	GS--UNC, Chapel Hill	BS in Stat--XU'94 MS in Stat--LSUMC'94		(Dr. B. D. Sharma)	
Shawanna Jackson	92-93	ME	3.54	21		ES--U of Detroit			Dr. F. Jalbout	
Shalanda Johns	90-91	Chem	3.84	23		Employed: LSU Med Ctr, NOLA (LEAVE OF ABSENCE)	BS in Chem(ACS)--XU'92		Dr. C. Klein Dr. S. Phadtare	
Etienette King	91-92	ChE	3.41	23		Employed: Exxon, Baytown TX	BS in Chem(ACS)--XU'93 BS in ChE--HU'94		Dr. J. Cannon--Tech Dr. C. Klein--XU	
Heidi Lovett	90-91	Math	3.39	19	1170	GS--Howard			Dr. L. Jones	
Andrea Simpson	93-94	ME	3.64	25		Junior		Mr. A. Jameel		
Lolita Tillery	91-92	ChE	3.41	25	1010	ES3--Tulane		Dr. M. Akundi		
Martha Turner	89-90	Math	3.39	26		GS3--Hampton U	BS in Math--XU'91		Dr. L. Jones Dr. B. D. Sharma	
Gregory Vincent	89-90	PHYS	3.64	23		Senior		Dr. M. Akundi		
Derek Walker	92-93	CS	3.07	23		Employed: IBM, Rockville MD	BS in CS--XU'93		Mr. A. Kumar	
Santa Wiltz	91-92	CS	3.98	13		Employed: Naval Computer & Telecommunications Station, NOLA	BS in CS--XU'93		Dr. M. Giguette	
Randall Wright	90-91	EE	4.00	23	980	MS--Emory Univ	BS in Phys--XU'94 BS in EE--GT'94		Dr. E. Eschenazi	
Simon Zippert	91-92	ME	3.83	26	990	ES--Tulane			Dr. F. Jalbout	

Table 2: *Science and Engineering Graduates and Professional School Enrollment (1991 - 1994)*

	1991		1992		1993		1994	
Major	**# of Grad**	**Grad/Prof**	**#of Grad**	**Grad/Prof**	**# of Grad**	**Grad/Prof**	**# of Grad**	**Grad/Prof**
Biology	33	19 (3)	57	39 (6)	93	53 (14)	91	55
Chemistry	48	18 (6)	30	15 (2)	41	22 (7)	43	21
Computer Science	3	0	4	0	10	4	10	3
Mathematics	8	4*	3	2	12	2	6	3
Physics*	0	0	0	0	4	3	4	2
Physics/Engineering**	5	0	5	1	3	1	4	2

( ) EE Just

* *These students began as engineering students and subsequently converted to Physics.*

** These students were/all participants in the Dual-Degree Engineering Program; some mav have received a Xavier Degree but have not completed Engineering school.

Table 3: ***General Enrollment and Graduation Data***

	Number of students enrolled at school (by year)				Number of students enrolled in ONR Program (by year)				Number of students graduated		Number to Graduate or Professional School	
Major Discipline (Science & Engineering)	1	2	3	4	1	2	3	4	Total	ONR	Total	ONR
Biology	331	169	158	98					91		55	
Chemistry	87	50	52	44					43	1	21	
Computer Science	32	22	17	21					10		3	
Engineering			1	3		4	3	8	4	2*	2	2
Mathematics	13	5	5	13				2	6	2	3	2
Physics	57	26	26	8				1	4		2	
Totals for science and engineering	520	270	259	187		4	3	11	158	5	86	4

* Includes one student with three Bachelor degrees (BA in Physics; BS in Chemistry--ACS Certified; BS in ChE) conferred and one with two Bachelor degrees (BS in Physics; BS in EE) conferred

Table 4: ***Academic Performance 1993 - 1994***

Class Year	Mean SAT (ACT) for all Freshman	Mean SAT (ACT) for ONR Freshman	Mean GPA for all students	Mean GPA for ONR students	Mean GRE (all students)	Mean GRE (ONR students)
1	906 (20.7)	-----	2.55	-----		
2			2.86	3.17		
3			2.87	3.51		
4			2.89	3.86	959	960

Table 5: *Future Scientists Internship Sites*

3M Corp.
St. Paul, MN
Cynthiana, KY

AT&T Bell Labs
Chicago, IL
Allentown, PA
New Jersey

Amoco
New Orleans, LA

Berkley Summer Math Institute
Berkeley, CA

Carolina Population Center
Chapel Hill, NC

Conoco
Ponca City, OK

Eastman Kodak
Rochester, NY

Exxon Chemicals America
Baton Rouge, LA

Honeywell
Tampa Bay, FL

IBM
Durham, NC
Austin, TX

LSU Medical Center
New Orleans, LA

Mallincrodt Specialty Chemicals Co.
St. Louis, MO

Polaroid
Mass.

Princeton University, New Jersey

SLSTP, NASA Kennedy Space Center

Shell Pipeline Corp.
New Orleans, LA

Star Enterprise
Houston, TX

University of Wisconsin

Xavier University of LA
New Orleans, LA

Xavier University of LA
FUTURE SCIENTISTS PROGRAM
PARTICIPANTS SURVEY

We are in the process of developing a final report to the Office of Naval Research on the first five years of the Future Scientists Program. In order to complete that report, we very much need your support by completing the short survey below. This is primarily for statistical purposes. Please answer each question as completely as possible.

1. Had you considered pursuing graduate school or graduate study before being introduced to the Future Scientist Program? ____ Yes ____No

2. What was your primary reason for choosing to participate in the Future Scientists Program?_____
_____

3. Do you believe that the Future Scientists Program has enhanced your chances of entering and successfully completing graduate study? ____Yes ____NO If no, why not?_____
_____

4. If you had considered graduate school before your introduction to the Future Scientists Program, what level of degree had you considered pursuing?
   ___ Masters
   ___ Doctorate
   ___ Other (indicate) _____

5. Do you still intend to pursue graduate school at this time (if you are not already in graduate school)? ___ Yes ___ No. If No, what are your present intentions? If Yes, what school and major? _____
_____

6. When is (was) your last semester at Xavier? _____ When will you (did you) complete your undergraduate studies? _____. How many years did it require? _____.

7. What was your major before your participation in the Future Scientists Program._____
_____? What is your current major? _____.

8. Indicate the degree to which the Future Scientists Program impacted on your decision to pursue your current major. _____ Not At All. _____ Reinforced Previous Decision . _____ Caused Change.

9. How many other students, that you personally know, might have participated in the Future Scientists Program had they been given the opportunity? _____.

10. If you did not complete your participation in the program, please explain briefly. _____
_____
_____

11. Are there other things that you think could have been done to enhance the program and your performance? Please explain. _____
_____

Thanks very much for your cooperation! George W. Baker, Dir. of Engineering Programs

XAVIER UNIVERSITY
Future Scientists Program (FSP)
Summary of Participants Responses to Survey

1. **Had you considered pursuing graduate school or graduate study before being introduced to the FSP?**
   YES (**16**) NO (**2**)

2. **What was your primary reason for choosing to participate in the FSP?**
   - To further educate, enrich, and motivate me to do my best to attain my goals.
   - It was an opportunity to explore pertinent areas in my discipline which were not being taught as a part of my curriculum.
   - I wanted to be exposed to research, so that I could determine if that is where my interest lie.
   - My primary reason for participating in the program was to find guidance and leadership from a mentor or someone who already has knowledge.
   - I felt that the ONR program was challenging and focused on graduate school.
   - To gain research experience that will help graduate school work.
   - Some research experience and more opportunity for graduate school
   - I chose to participate because of its financial assistance and the XU director's support of students.
   - Encouraged to do so.
   - Research opportunities and financial assistance. (**3**)
   - Mentor program, financial assistance.
   - My primary reason for participating is to gain research experience.
   - To get exposed to for graduate school and its opportunities.
   - Financial assistance. (**2**)
   - My mom has a graduate degree.

3. **Do you believe that the FSP has enhanced your chances of entering and successfully completing graduate study?**
   YES (**17**) NO (**1**)
   If no, why not?
   - There is not a research area offered by the program that pertains to my field of graduate study.

4. **If you had considered graduate school before your introduction to the FSP, what level of degree had you considered pursuing?**
   Masters (**7**) Doctorate (**9**) No response (**2**) Other (--)

   Comments: Since then I have decided to pursue a doctorate degree as well.

5. **Do you still intend to pursue graduate school at this time?**
YES (18) NO (--)

6. **Number of years required to complete undergraduate studies.**

NO. OF YRS	CHEM	CPSC	MATH	PHYS/ENGR
NOT SURE				2
3				1
4			4	
5	1	1	1	5
5.5				3

7. **Major before and after participation in the FSP.**

NO. OF STUDENTS	PREVIOUS MAJOR	CURRENT MAJOR
3	MATH	MATH
1	STAT	STAT
2	CPSC	CPSC
1	ENGR	ENGR
1	*ENGR*	*EE*
1	*ENGR*	*EnvE*
1	*BiomE*	*ME*
3	ChE	ChE
1	*ChE*	*ChE/PHYS*
1	*ChE*	*CHEM*
1	*ME*	*PHYS*
1	*ME*	*EE*
1	*ME*	*TextE*

8. **Indicate the degree to which the FSP impacted on your decision to pursue your current major.**
Not at all (**2**) Reinforced Previous Decision (**11**) Caused Change (**5**)

9. **How many other students, that you personally know, might have participated in the FSP had they been given the opportunity?**
1 - 2 (**1**)
3 - 4 (**4**)
5 - 6 (**6**)
7 or more (**4**)
No Response (**2**)

10. **If you did not complete your participation, please explain briefly.**
- Financial and health/emotional problems caused by stress and mentor's unwillingness to cooperate fully contributed to incomplete participation; however independent study of topology continued.
- Due to the transition period required when changing schools, I took a hiatus from research. However, I will begin research again in the fall.
- N/A (**5**)
- No response (**11**)

11. Are there other things that you think could have been done to enhance the program and your performance? Please explain.

- I should have sought mentor(s) in another/other discipline(s) and found stable income source(s).
- Unfortunately I am not aware of all the occurrences at the ONR meetings, but I feel that the meetings should be conducted in a support group fashion in order to discuss fears, experiences, etc. pertaining to graduate school. I think that present graduate students who are willing to share their experiences openly & honestly ought to be invited to speak. I think it is a real pity that some of our finest Xavierites get to graduate school and come very close to quitting because the transition and course load is so stressful!
- It would have been beneficial to have more guest speakers from the workforce or graduate school that could have given a more concise view of future advancements in our curriculum/majors/career choices.
- I think that organizing seminars pertaining to current research activities at various graduate schools would enhance the program.
- More activities should be had for FSP participants so that concerns and problems can be discussed with peers.
- I think there could have been better focus on the types of opportunity there are if graduate school had been pursued.
- I think more interaction with the other ONR students to talk about their research experiences would have helped.
- Research projects should consist of written technical communiqués. The quality of work done on the projects would be a good measure of seriousness about graduate school. Good first step for proposal writing.
- No because the program is well run and well constructed.
- I think that more resources (computers, labs, etc.) needs to be allocated for researchers in the program.
- No comment.
- No response (7)