The University of Texas
Graduate School of Biomedical Sciences
at Houston

Alumni Survey 2009

THE UNIVERSITY OF TEXAS
MD ANDERSON
CANCER CENTER

August 2009

Prepared by
Institutional Research
M. D. Anderson Cancer Center

The University of Texas
M.D. Anderson Cancer Center

The University of Texas
Graduate School of Biomedical Sciences
at Houston

2009 Alumni Survey

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Institutional Research
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Abstract

The mission of the University of Texas Graduate School of Biomedical Sciences (GSBS) is to educate research scientists and scientist-educators, generate new knowledge in the biomedical sciences, and increase public understanding of science. The GSBS achieves this mission by offering Masters and Doctoral programs in all major areas of contemporary biomedical sciences. In order to improve GSBS programs and guide planning efforts, an Alumni Survey was sent to GSBS graduates in the spring of 2009. The following objectives are addressed in this report: 1) to determine alumni perception of their education and training at the GSBS; 2) to determine post-GSBS activity; and 3) to determine alumni demographics. A total of 585 GSBS alumni responded to the survey, resulting in a response rate of 41.1%. Approximately 36.2% of the respondents graduated in 2001 or later, 27.9% graduated between 1991 and 2000, 19.2% graduated between 1981 and 1990, 13.6% graduated between 1971 and 1980, and 3.1% graduated in 1970 or earlier. Combined responses at or above 85% (a "B plus") were selected as the benchmark for favorable status in this survey.

The first objective was to determine the perception of alumni regarding their education and training at the GSBS. Over 85% of the respondents indicated that the GSBS was either *very adequate* or *adequate* in preparing them in the following areas: coursework (93.5%); research training (for thesis/dissertation) (91.2%); and candidacy exam (85.7%). Less than 85% indicated that GSBS was either *very adequate* or *adequate* in preparing them in: preparation and delivery of scientific talks (84.8%); preparation of scientific publications (75.4%); and understanding career options for Ph.D.s in biomedical sciences (54.8%).

Over 80% of the respondents indicated the GSBS experience was either *very effective* or *effective* in providing them with the knowledge (87.3%) and skills (84.4%) they are using today. Over 90% of the respondents were either *very satisfied* or *satisfied* with the education they received at GSBS (94.3%) and that the GSBS education prepared them to accomplish their goals (90.4%). Approximately 91.9% of the respondents would either *strongly recommend* or *recommend* the GSBS to other individuals for their graduate training.

Based on their own experience after leaving GSBS, over 85% of the respondents believed that training in the following areas should be either *very important* or *important* for GSBS students: verbal communication skills (98.9%); writing scientific manuscripts and research proposals (98.3%); career planning (95.5%); and skills for leading a lab or research group (93.3%). Less than 85% of the respondents indicated that training in teaching (81.1%) or industrial research (74.7%) was important.

Respondents were asked to rate the GSBS curriculum in five areas. Over 85% of the respondents indicated the following three areas were either *very good* or *good*: advanced training in your program (or research area for unaffiliated students) (89.8%); course quality (89.3%); and breadth of courses available (85.2%). Less than 85% rated the following areas as either *very good* or *good*: preparation for dissertation research (81.8%) and flexibility to accommodate individual student's needs (75.7%).

As GSBS students, 87.7% of the respondents indicated they authored or co-authored research articles in refereed journals, book chapters, or review. As a GSBS student, 53.1% of the respondents indicated they authored articles in refereed journals, while 45.2% co-authored articles. Over 60% of the respondents indicated that authorships in book chapters or edited volumes and review articles were not applicable to them.

As a GSBS student, over 70% of the respondents indicated they made scientific presentations (including poster presentations) at national conferences/symposia (83.5%) and conferences/symposia in the Texas Medical Center (TMC) (72.0%). Over half of the respondents indicated that they *did not* make scientific presentations (including poster presentations) at international conferences/symposia (65.3%) or at conferences/symposia in the Houston area (other than the TMC) (63.0%) or in Texas (other than in Houston) (52.0%).

The second objective was to determine post-GSBS activity. Respondents were asked to describe their activity in four different areas.

Post-GSBS Training/Education

Immediately upon graduation from the GSBS, the majority of respondents either continued research training (post-doc, research fellow, etc.) (56.4%) or sought employment in a research or science-related position (21.8%). Approximately 48.1% of the respondents indicated they had one to three years of additional research training since graduating from the GSBS, while 26.5% had four to six additional years. Since completion of their GSBS training, the majority of respondents had either post-doctoral training (53.5%), graduate level courses in another area (13.7%), or trained in a residency program (9.4%). Approximately 19.3% of the respondents did not have any additional training since completion of their GSBS training. As for degrees earned after graduating from the GSBS, 16.4% of the respondents indicated they earned a Ph.D., 8.7% earned an M.D. degree, and 2.6% earned a J.D. degree, while 14.7% indicated they earned a degree other than what was listed on the survey, such as an M.B.A. or an M.P.H.

When the respondents *first entered* GSBS, 71.3% indicated their *primary career goal* as academic research and teaching at a research-intensive institution, while *at this time*, 47.0% indicated it was a primary career goal. When the respondents *first entered* GSBS, 5.7% indicated scientific management or administration was a primary goal, while *at this time*, 22.6% of the respondents indicated it was a primary career goal. When respondents first entered GSBS, 39.9% of the respondents indicated their *secondary career goal* as industrial research and/or development, while at this time, 27.1% indicated it was a secondary career goal.

Approximately 64.4% of the respondents indicated that their advisor (thesis/dissertation supervisory professor) was either *very helpful or helpful* in assisting them in obtaining their first position after graduation from the GSBS. Over 85% of the respondents indicated that their training at the GSBS was either *very effective* or *effective* in preparing them for their first position after graduation from the GSBS (85.9%).

Current Employment History

Approximately 90.3% of the respondents were currently employed. The majority of respondents indicated their current *employment field* as research and development (35.0%), education/teaching (20.9%), or health care practice (20.2%). When asked to indicate current *employment type*, the majority of respondents indicated it as either a research intensive university, including professional schools (30.4%), business industry (16.6%), health care facility (16.1%), or a research institute (13.2%). Approximately 44.4% of the respondents have been employed by their current employer for one to five years, 17.1% have been employed for six to ten years, and 15.4% have been with their current employer for over fifteen years. The majority of respondents indicated their current job title as either lab or unit manager or supervisor (63.0%) or a faculty title (professor, associate, assistant, instructor) (28.9%). Over half of the respondents were employed outside of Texas, within the United States (56.9%), while 32.4% were employed within the Houston area (in Harris or adjacent counties).

Relationship of GSBS Education and Employment History

The majority of respondents, 86.3%, indicated they were either *very appropriately employed* or *appropriately employed*. In addition, over 80% of the respondents indicated that their current employment was either *very related* or *related* to the training they received at GSBS (82.1%) and that the GSBS training was either *very effective* or *effective* in preparing them for their current position (81.9%).

Honors, Awards, and Accomplishments

During their career, 41.5% of respondents received an award from their institution or employer, 32.8% received an award for research, 27.0% received an award from a professional society, and 11.6% received an award for teaching. During their career, 19.0% of respondents have been named as an inventor on a science or technology-related patent, 17.9% have disclosed a discovery for the consideration of filing a patent, 15.9% have filed for a science or technology related patent, and 11.8% have developed for commercialization or licensing any animal models, antibodies, cell lines, plasmids or other research-related materials.

During their career, 24.6% of the respondents have been a principal investigator (PI) on a peer-reviewed research grant (>$100,000) similar to an R01 from the NIH, NSF or another major federal government agency and 25.8% of the respondents have been a PI on any other type of research grant received from a state or federal government, non-profit agency, or commercial entity. Approximately 42.4% of respondents have not received a major grant of the types listed on the survey, during their career. Approximately 71.3%

of the respondents have, during their career, authored or co-authored refereed original research articles, 41.0% have authored or co-authored review articles, and 37.9% have authored or co-authored book chapters. Using their own criterion(a) for success, 82.7% of the respondents feel they have been either *very successful* or *successful* thus far in their career.

The third objective was to determine alumni demographics. Over half of the respondents indicated they were a citizen or permanent resident of the United States (91.3%), White/Caucasian (70.5%), female (63.5%), and born between 1955 and 1974 (54.0%). Almost three-fourths of the respondents, 74.4%, received a Ph.D. degree from the GSBS, while 31.5% received an M.S. degree. The top three programs respondents indicated they received their degree from are as follows: Biochemistry and Molecular Biology (11.8%); Cancer Biology (11.2%); and Genes and Development (8.1%). Approximately 12.2% of the respondents indicated they did not receive their degree from a formalized program at GSBS.

One major goal at GSBS is to build a lasting relationship with alumni. Respondents were asked to indicate their interest in ten electronic methods GSBS is reviewing to maintain contact with alumni. There were no methods in which 85% or more of the respondents were either *very interested* or *interested*, while over 50% of the respondents were either *very interested* or *interested* in the following four areas: news and updates about GSBS (75.0%); alumni newsletter (72.0%); alumni directory (69.4%); and ability to connect with current students/faculty (55.1%). The five methods in which the respondents were either *very uninterested* or *uninterested* are: blogging (46.5%); message boards (35.3%); e-mail account (32.6%); make an on-line donation (25.1%); and career/job posting center (23.1%).

Approximately 69.2% of the respondents indicated that at the time of their graduation, they *did not* have significant education-related debt. Of the respondents who had debt, the majority indicated it was either between *$10,000 but less than $50,000* (55.7%) or *less than $10,000* (24.9%).

Significant differences in response patterns were found by six demographic groups: gender, ethnicity, employment location, what the respondent did immediately upon graduation, by year of graduation, and significant differences by current employer type. The most significant differences were by current employee type, followed by year of graduation, what the respondent reported immediately upon graduation, employment location, ethnicity and gender. Respondents who *continued research training (post-doc, research fellow, etc.)* immediately upon graduation from the GSBS were *more likely* than respondents who *continued education in another field (medicine, law, business, etc.)* immediately upon graduation from the GSBS to: indicate that their GSBS training effectively prepared them for their first position after graduation from the GSBS (q.18); and/or indicate that their current employment was related to the training they received at GSBS (q.26); and/or be interested in an electronic career/job posting center (q.36f).

The survey response rate of 41.1% may or may not represent the views of all alumni. A response rate closer to 70% is desirable. Due to the changes in the survey questions, it was not possible to compare the responses from 2009 alumni survey with the responses from 2004 alumni survey.

The validity of the overall course evaluation indicates that the questions defining the preparation of GSBS alumni section, post-GSBS activity section, and alumni demographics section of the evaluation were not distinct enough to show two different concepts. These survey results are useful for program planning efforts.

The survey results indicate that improvement may be needed in the following areas: preparation and delivery of scientific talks; preparation of scientific publications; understanding career options for Ph.D.'s in biomedical sciences; preparation for dissertation research; flexibility of GSBS curriculum in accommodating individual student's needs; and helpfulness of advisor in assisting with obtaining first position post-graduation. To build a lasting relationship with alumni, GSBS should focus on an electronic format alumni directory, alumni newsletter, and news and updates about GSBS.

We recommend that the GSBS continue to conduct alumni evaluations to assess student outcomes.

Table of Contents

I. Introduction and Purpose of Study

The mission of the University of Texas Graduate School of Biomedical Sciences (GSBS) is to educate research scientists and scientist-educators, generate new knowledge in the biomedical sciences, and increase public understanding of science. The GSBS achieves this mission by offering Masters and Doctoral programs in all major areas of contemporary biomedical sciences. In order to improve GSBS programs and guide planning efforts, an Alumni Survey was sent to GSBS graduates in the spring of 2009. The following objectives are addressed in this report:

Objective 1: To determine alumni perception of their education and training at the GSBS.

Objective 2: To determine post-GSBS activity.

Objective 3: To determine alumni demographics.

II. Background of Evaluation Process

The Graduate School of Biomedical Sciences (GSBS) was established in 1963 by the Regents of The University of Texas in response to a request by The University of Texas M. D. Anderson Cancer Center to have a UT graduate school established in Houston for graduate students training with M. D. Anderson scientists. Since then, GSBS has evolved as an important academic bridge between the UT-Houston Health Science Center, the M. D. Anderson Cancer Center, and the Texas A&M Institute of Biosciences and Technology.

The GSBS has an interdisciplinary approach to biomedical sciences education in contrast to more traditional departmentalized models focused on particular disciplines. The educational program at GSBS imposes minimal constraints on students and allows them to tailor-make their own program of study. Students frequently conduct their research in newly developing inter- or multi-disciplinary areas. The GSBS is on the leading edge of graduate education in the biomedical sciences and that strength has been complemented by the development of more disciplinary programs as well.

The 2009 GSBS Alumni Survey was administered to evaluate alumni perceptions of the education and training they received at the GSBS. The survey was mailed to all master's and doctoral alumni, starting from the first graduating class of 1967 to the most recent graduating class. The 2009 survey was a follow up to the 2004 survey to assess any changes in perceptions by GSBS graduates. Questions from the 2004 survey were modified to more accurately describe the areas evaluated. Additionally, several questions were added for clarification of various programs. Due to the changes in the survey questions, it was not possible to compare the responses from 2009 with the responses from 2004.

III. Methods

The GSBS Alumni Survey was mailed 1,491 GSBS alumni. A reminder postcard was sent one week after the initial mailing. For alumni who did not respond within four weeks of the original mailing, another copy of the instructions and survey were mailed. A third mailing of the survey was sent to the alumni who had not responded after the first two mailings. The hard copy surveys had control numbers for mailing purposes to ensure no alumni received another survey if they completed it already. Respondents were also given the option to complete the survey online, by using the control number on the paper version to access the online survey. Approximately 69 surveys were returned due to incorrect addresses, a total of 585 GSBS alumni responded to the survey, resulting in a response rate of 41.1%.

Frequency distributions were used to analyze the data. All unknown or missing responses were removed from the analyses. The paper surveys were entered into the on-line survey database, while the online data was downloaded directly from the internet server by the Department of Institutional Research at The University of Texas M. D. Anderson Cancer Center. The data was analyzed using SPSS for Windows, Release 14.0, Standard Version. A time line for the study is presented in Figure 3.1. The survey instrument, letters and postcard are presented in Appendix A.

Figure 3.1
GSBS Alumni Survey
Study Time Line

Survey Distribution
Initial Mailing of Survey: January 29, 2009
Postcard Reminder: February 9, 2009
Second Mailing of Survey: February 23, 2009
Third Mailing of Survey: March 23, 2009
Closing Date for Survey: June 9, 2009

Survey Analysis
Data Analysis: June 2009

Report Submission
Draft: June 22, 2009
Final: August 4, 2009

Reliability and validity analysis was conducted for the survey. The internal consistency of the responses was measured using the Cronbach's Alpha Coefficient. A question was considered a 'reliable' measure of the respondent's attitudes towards the concepts in the items of the study questions if a minimum coefficient of 0.70 was achieved. The overall standardized item alpha for the alumni survey was 0.920, which indicates a high reliability for the evaluation instrument.

Convergent validity involves the extent to which two or more different measures of the same attribute are correlated. The higher the correlation between the measures, the greater the convergent validity of the measured attribute. Discriminant validity requires that a measurement should not be highly correlated with another measurement when it is intended to differ. If it is found that measures of two topics are highly correlated, it would be concluded that discriminant validity was lacking. Discriminant validity represents a relatively powerful test of the validity of a measure. Convergent and discriminant validity of the three independent topics for the GSBS Evaluation were assessed by examining the correlations among the various items that comprise each topic. The inter-item correlation matrix was developed and is presented in Table 3.1. The inter-item correlation coefficients which were calculated as part of the Cronbach Alpha were used to construct the matrix. The mean of the inter-item correlations was entered in the appropriate cell of the matrix. Since the values on the

main diagonal (in bold) *are not* consistently higher than the off diagonal values, this *does not* reflect a pattern of convergent and discriminant validity between: (1) Preparation of GSBS Alumni; (2) Post-GSBS Activity; and (3) Alumni Demographics.

Table 3.1
GSBS Alumni Survey
Inter-Item Correlation Matrix

	Preparation of GSBS Alumni	Post-GSBS Activity	Alumni Demographics
Preparation of GSBS Alumni	**0.277**	0.251	0.246
Post-GSBS Activity	0.251	**0.320**	0.287
Alumni Demographics	0.246	0.287	**0.508**

The evaluation process is a means to determine what actions need to be taken by the GSBS to improve the school's program and guide planning efforts. The outcome from the analysis of the survey is based on several parameters for this determination. Combined responses at or above 85% (a "B plus") were selected as the benchmark for favorable status in this survey. The parameters are noted in Table 3.2.

Table 3.2
GSBS Alumni Survey
Evaluation Parameters

1. **Outcome Results are Above Standard; No Action Plan Needed to Address Outcomes:** *Combined responses of "Very Adequate/Adequate, Very Effective/Effective, Very Satisfied/ Satisfied, Strongly Recommend/Recommend, Very Good/Good Very Helpful/Helpful, and Very Successful/Successful" at or above 85%. Areas in this classification are identified in the results.*

2. **Results Indicate Areas Needing Improvement:**
Combined responses of "Very Adequate/Adequate, Very Effective/Effective, Very Satisfied/ Satisfied, Strongly Recommend/Recommend, Very Good/Good Very Helpful/Helpful, and Very Successful/Successful" less than 85% and above 50% or responses of "Neither X nor Y" at or above 30%. Areas in this classification are identified in the results.

3. **Results Indicate A Need For A Review to Identify An Improvement Plan:**
Combined responses of "Very Adequate/Adequate, Very Effective/Effective, Very Satisfied/ Satisfied, Strongly Recommend/Recommend, Very Good/Good Very Helpful/Helpful, and Very Successful/Successful" are at or below 50% or combined responses "Very Inadequate/Inadequate, Very Ineffective/Ineffective, Very Dissatisfied/ Dissatisfied, Strongly Discourage/Discourage, Very Poor/Poor Very Unhelpful/Unhelpful, and Very Unsuccessful/Unsuccessful" at or above 20%. Areas in this classification are identified in the results.

IV. Results

A. Objective 1 Analysis *(Refer to Appendix B, Tables B.1)*

The first objective was to determine the perception of alumni regarding their education and training at the GSBS. Over 85% of the respondents indicated that the GSBS was either *very adequate* or *adequate* in preparing them in the following areas: coursework (93.5%); research training (for thesis/dissertation) (91.2%); and candidacy exam (85.7%). Less than 85% indicated that GSBS was either *very adequate* or *adequate* in preparing them in the following areas: preparation and delivery of scientific talks (84.8%); preparation of scientific publications (75.4%); and understanding career options for Ph.D.s in biomedical sciences (54.8%).

Over 80% of the respondents indicated the GSBS experience was either *very effective* or *effective* in providing them with the knowledge (87.3%) and skills (84.4%) they are using today. Over 90% of the respondents were either *very satisfied* or *satisfied* with the education they received at GSBS (94.3%) and that the GSBS education prepared them to accomplish their goals (90.4%). Approximately 91.9% of the respondents would either *strongly recommend* or *recommend* the GSBS to other individuals for their graduate training.

Based on their own experience after leaving GSBS, over 85% of the respondents believed that training in four areas should be either *very important* or *important* for GSBS students (Table 4.1). Less than 85% of the respondents indicated that training in teaching (81.1%) or industrial research (74.7%) was important.

Table 4.1
GSBS Alumni Survey
Training Areas Considered Either Very Important or Important by ≥ 85% of Respondents

Question	% Important
6. Based upon your own experience after leaving GSBS, how important do you believe training in the areas below should be for GSBS students?	
a. Career Planning	95.5%
c. Professional skills such as:	
1. Skills for leading a lab or research group	93.3%
2. Verbal communication skills	98.9%
3. Writing scientific manuscripts and research proposals	98.3%

Respondents were asked to rate the GSBS curriculum in five areas. Over 85% of the respondents indicated the following three areas were either *very good* or *good*: advanced training in your program (or research area for unaffiliated students) (89.8%); course quality (89.3%); and breadth of courses available (85.2%). Less than 85% rated the following areas as either *very good* or *good*: preparation for dissertation research (81.8%) and flexibility to accommodate individual student's needs (75.7%).

As GSBS students, 87.7% of the respondents indicated they authored or co-authored research articles in refereed journals, book chapters, or review. As a GSBS student, 53.1% of the respondents indicated they authored articles in refereed journals, while 45.2% co-authored articles. Over 60% of the respondents indicated that authorships in book chapters or edited volumes and review articles were not applicable to them, while over 20% indicated they co-authored book chapters or edited volumes (27.6%) or review articles (24.0%).

As a GSBS student, over 70% of the respondents indicated they made scientific presentations (including poster presentations) at national conferences/symposia (83.5%) and conferences/symposia in the Texas Medical Center (TMC) (72.0%). Over half of the respondents indicated that they *did not* make scientific presentations (including poster presentations) at international conferences/symposia (65.3%) or at conferences/symposia in the Houston area (other than the TMC) (63.0%) or in Texas (other than in Houston) (52.0%).

B. Objective 2 Analysis ***(Refer to Appendix B, Tables B.1)***

The second objective was to determine post-GSBS activity. Respondents were asked to describe their activity in four different areas.

Post-GSBS Training/Education

Immediately upon graduation from the GSBS, 56.4% of the respondents continued research training (post-doc, research fellow, etc.), 21.8% sought employment in a research or science-related position, 12.4% continued education in another field (medicine, law, business, etc.), 3.7% sought employment in a non-research or non-science position, while 5.7% indicated they did something other than what was listed on the survey, such as staying at home with children or returning to military service.

Approximately 48.1% of the respondents indicated they had one to three years of additional research training since graduating from the GSBS, 26.5% had four to six years, 17.3% had less than one year, and 8.1% had over six years of additional research training since graduating from the GSBS. Since completion of their GSBS training, 53.5% of the respondents had post-doctoral training, 13.7% had graduate level courses in another area, 9.4% trained in a residency program, 5.1% had graduate classes in their field, while 19.3% did not have any additional training since completion of their GSBS training. Approximately 16.4% of the respondents indicated they earned a Ph.D. after graduating from GSBS, 8.7% earned an M.D. degree, 2.6% earned a J.D. degree, 0.9% earned a D.D.S. degree, 0.2% earned at Dr.P.H. degree, while 14.7% indicated they earned a degree other than what was listed on the survey, such as an M.B.A. or an M.P.H.

When the respondents *first entered* GSBS, 71.3% indicated their *primary career goal* as academic research and teaching at a research-intensive institution. Approximately 39.9% of the respondents indicated their *secondary career goal* as industrial research and/or development and 36.6% indicated it was undergraduate teaching and research. Over half of the respondents indicated that scientific management or administration (69.5%) and undergraduate teaching and research (54.0%) was not a career goal when they first entered the GSBS.

At *this time*, 47.0% of alumni indicated their *primary career goal* as academic research and teaching at a research-intensive institution, while 34.7% indicated it was not a career goal. Approximately 30.8% of the respondents indicated undergraduate teaching and research as a *secondary career goal*, while 59.5% indicated it was *not a career goal*. Less than 50% of the respondents indicated industrial research and/or development (49.6%) and scientific management or administration (48.8%) was *not a career goal*. Less than 30% of the respondents indicated that scientific management or administration (28.6%) and industrial research and/or development (27.1%) was a *secondary career goal* at this time.

Approximately 64.4% of the respondents indicated that their advisor (thesis/dissertation supervisory professor) was either *very helpful or helpful* in assisting them in obtaining their first position after graduation from the GSBS, while 25.8% indicated their advisor was *neither helpful nor unhelpful*. Over 85% of the respondents indicated that their training at the GSBS was either *very effective* or *effective* in preparing them for their first position after graduation from the GSBS (85.9%).

Current Employment History

The majority of respondents, 90.3%, were currently employed. Approximately 35.0% of the respondents indicated their current *employment field* as research and development, 20.9% indicated it as education/teaching, 20.2% indicated it as health care practice, 15.9% indicated it as administration or management, 12.1% indicated postdoctoral trainee, and 14.5% indicated it as something other than what was listed on the survey, such as legal. (Respondents were allowed to select more than one choice to describe their employment field.) When asked to indicate current *employment type*, the majority of respondents indicated it as either research intensive university, including professional

schools (30.4%), business industry (16.6%), health care facility (16.1%), or a research institute (13.2%).

Approximately 44.4% of the respondents have been employed by their current employer for one to five years, 17.1% have been employed for six to ten years, 15.4% have been with their current employer for over fifteen years, 12.5% have been employed for less than one year, and 10.6% have been with their current employer for eleven to fifteen years. Over 60% of the respondents indicated their current job title as lab or unit manager or supervisor (63.0%), 28.9% indicated it was a faculty title (professor, associate, assistant, instructor), 13.3% indicated it was a trainee title (post-doc fellow, resident, intern), 12.3% indicated it was director, head, or chairperson, while 9.6% indicated it was research-scientist or similar position. Approximately 28.2% indicated their current job title was something other than what was listed on the survey, such as physician or dentist. (Respondents were allowed to select more than one choice to describe their job title.)

Over half of the respondents were employed outside of Texas, within the United States (56.9%), 32.4% were employed within the Houston area (in Harris or adjacent counties), 6.7% were employed within Texas (outside the Houston area), and 4.0% were employed outside of the United States.

Relationship of GSBS Education and Employment History

The majority of respondents, 86.3%, indicated they were either *very appropriately employed* or *appropriately employed*. In addition, over 80% of the respondents indicated that their current employment was either *very related* or *related* to the training they received at GSBS (82.1%) and that the GSBS training was either *very effective* or *effective* in preparing them for their current position (81.9%).

Honors, Awards, and Accomplishments

During their career, 41.5% of respondents received an award from their institution or employer, 32.8% received an award for research, 27.0% received an award from a professional society, and 11.6% received an award for teaching. During their career, 19.0% of respondents have been named as an inventor on a science or technology-related patent, 17.9% have disclosed a discovery for the consideration of filing a patent, 15.9% have filed for a science or technology related patent, and 11.8% have developed for commercialization or licensing any animal models, antibodies, cell lines, plasmids or other research-related materials.

During their career, 24.6% of the respondents have been a principal investigator (PI) on a peer-reviewed research grant (>$100,000) similar to an R01 from the NIH, NSF or another major federal government agency, 19.7% have been a PI on a peer-reviewed grant (>50,000) from a non-profit agency or foundation to perform research, and 9.1% have been a PI on a research grant (>50,000) from a commercial entity (e.g. drug company). During their career, 25.8% of the respondents have been a PI on any other type of research grant received from a state or federal government, non-profit agency, or commercial entity. Approximately 42.4% of respondents have not received a major grant of the types listed on the survey, during their career.

Approximately 71.3% of the respondents have, during their career, authored or co-authored refereed original research articles, 41.0% have authored or co-authored review articles, 37.9% have authored or co-authored book chapters, and 9.9% have authored or co-authored books or edited volumes. Using their own criterion(a) for success, 82.7% of the respondents feel they have been either *very successful* or *successful* thus far in their career.

C. Objective 3 Analysis *(Refer to Appendix B, Tables B.1, Appendix C, Table 1)*

The third objective was to determine alumni demographics. Approximately 36.2% of the respondents graduated in 2001 or later, 27.9% graduated between 1991 and 2000, 19.2% graduated between 1981 and 1990, 13.6% graduated between 1971 and 1980, and 3.1% graduated in 1970 or

earlier. Almost three-fourths, 74.4%, received a Ph.D. degree from the GSBS, while 31.5% received an M.S. degree. (Respondents were allowed to select more than one degree.) The top five programs respondents indicated they received their degree from are as follows: Biochemistry and Molecular Biology (11.8%); Cancer Biology (11.2%); Genes and Development (8.1%); Human and Molecular Genetics (7.2%); and Immunology (5.6%). Approximately 12.2% of the respondents indicated they did not receive their degree from a formalized program at GSBS.

One major goal at GSBS is to build a lasting relationship with alumni. Respondents were asked to indicate their interest in ten electronic methods GSBS is reviewing to maintain contact with alumni. There were no methods in which 85% or more of the respondents were either *very interested* or *interested*, while over 50% of the respondents were either *very interested* or *interested* in four of the areas (Table 4.2). There were seven methods in which 30% or more of the respondents were *neither interested nor uninterested* (Table 4.3), and five methods in which over 20% of the respondents were either *very uninterested* or *uninterested* (Table 4.4).

Table 4.2
GSBS Alumni Survey
Areas in which ≥ 50% of Respondents were Either Very Interested or Interested

Question	%Interested
36. Please indicate your interest in each electronic format.	
a. Ability to connect with current students/faculty.	55.1%
b. Alumni Directory	69.4%
c. Alumni Newsletter	72.0%
j. News and Updates about GSBS	75.0%

Table 4.3
GSBS Alumni Survey
Areas in which ≥ 30% of Respondents were Neither Interested nor Uninterested

Question	% Neither Interested Interested nor Uninterested
36. Please indicate your interest in each electronic format.	
a. Ability to connect with current students/faculty.	30.3%
d. Alumni surveys	37.2%
e. Blogging	39.8%
f. Career/job posting center	32.0%
g. E-mail account	33.2%
h. Make an on-line donation	48.1%
i. Message boards	44.6%

Table 4.4
GSBS Alumni Survey
Areas in which ≥ 20% of Respondents were Either Very Uninterested or Uninterested

Question	% Uninterested
36. Please indicate your interest in each electronic format.	
e. Blogging	46.5%
f. Career/job posting center	23.1%
g. E-mail account	32.6%
h. Make an on-line donation	25.1%
i. Message boards	35.3%

Approximately 69.2% of the respondents indicated that at the time of their graduation, they *did not* have significant education-related debt. Of the respondents who had debt, 55.7% indicated the amount was between *$10,000 but less than $50,000*, 24.9% indicated it was *less than $10,000*, 15.1% indicated it was *$50,000 but less than $100,000*, and 4.3% indicated it was *$100,000 but less than $250,000*.

Over half of the respondents indicated they were a citizen or permanent resident of the United States (91.3%), White/Caucasian (70.5%), female (63.5%), and born between 1955 and 1974 (54.0%).

There were significant differences in response patterns by the various demographic groups. There were three significant differences by gender, twenty differences by ethnicity, twenty-two differences by employment location, 39 differences by what the respondent did immediately upon graduation, 62 differences by year of graduation, and 138 significant differences by current employer type. A sampling of some of the differences is presented in Table 4.5. A complete listing of the differences is presented in Appendix C, Table C.1.

Table 4.5
GSBS Alumni Survey
Results of Non-Parametric Tests for Significant Differences by Group
Sample of Significant Differences

Significant Differences by What Respondents Did Immediately Upon Graduation

Respondents who ***continued research training (post-doc, research fellow, etc.)*** immediately upon graduation from the GSBS were *more likely* than respondents who ***continued education in another field (medicine, law, business, etc.)*** immediately upon graduation from the GSBS to:

- indicate that their GSBS training effectively prepared them for their first position after graduation from the GSBS (q.18)
- indicate that their current employment was related to the training they received at GSBS (q.26).
- be interested in an electronic career/job posting center (q.36f)

Significant Differences by Employer Type

Respondents whose employer type was ***business/industry*** were *more likely* than respondents whose employer type was a ***research institute*** to:

- believe that, based upon their experience after leaving GSBS, training in industrial technology should be important for GSBS students (q.6b).
- feel that they have been successful thus far in their career (q.32).

Significant Differences by Employer Type

Respondents who graduated ***between 1991 - 2000*** were *more likely* than respondents who graduated ***between 2001 - 2008*** to:

- indicate that the GSBS was adequate in preparing them for preparation of scientific publications (q.1d)
- feel that given their level of education, training, and experience they are appropriately employed (q.25).
- feel that they have been successful thus far in their career (q.32).

V. Conclusions

A. Major Findings

The mission of the University of Texas Graduate School of Biomedical Sciences (GSBS) is to educate research scientists and scientist-educators, generate new knowledge in the biomedical sciences, and increase public understanding of science. The GSBS achieves this mission by offering Masters and Doctoral programs in all major areas of contemporary biomedical sciences. In order to improve GSBS programs and guide planning efforts, an Alumni Survey was sent to GSBS graduates in the spring of 2009. The following objectives are addressed in this report: 1) to determine alumni perception of their education and training at the GSBS; 2) to determine post-GSBS activity; and 3) to determine alumni demographics. A total of 585 GSBS alumni responded to the survey, resulting in a response rate of 41.1%. Approximately 36.2% of the respondents graduated in 2001 or later, 27.9% graduated between 1991 and 2000, 19.2% graduated between 1981 and 1990, 13.6% graduated

between 1971 and 1980, and 3.1% graduated in 1970 or earlier. Combined responses at or above 85% (a "B plus") were selected as the benchmark for favorable status in this survey.

The first objective was to determine the perception of alumni regarding their education and training at the GSBS. Over 85% of the respondents indicated that the GSBS was either *very adequate* or *adequate* in preparing them in the following areas: coursework (93.5%); research training (for thesis/dissertation) (91.2%); and candidacy exam (85.7%). Less than 85% indicated that GSBS was either *very adequate* or *adequate* in preparing them in: preparation and delivery of scientific talks (84.8%); preparation of scientific publications (75.4%); and understanding career options for Ph.D.s in biomedical sciences (54.8%).

Over 80% of the respondents indicated the GSBS experience was either *very effective* or *effective* in providing them with the knowledge (87.3%) and skills (84.4%) they are using today. Over 90% of the respondents were either *very satisfied* or *satisfied* with the education they received at GSBS (94.3%) and that the GSBS education prepared them to accomplish their goals (90.4%). Approximately 91.9% of the respondents would either *strongly recommend* or *recommend* the GSBS to other individuals for their graduate training.

Based on their own experience after leaving GSBS, over 85% of the respondents believed that training in the following areas should be either *very important* or *important* for GSBS students: verbal communication skills (98.9%); writing scientific manuscripts and research proposals (98.3%); career planning (95.5%); and skills for leading a lab or research group (93.3%). Less than 85% of the respondents indicated that training in teaching (81.1%) or industrial research (74.7%) was important.

Respondents were asked to rate the GSBS curriculum in five areas. Over 85% of the respondents indicated the following three areas were either *very good* or *good*: advanced training in your program (or research area for unaffiliated students) (89.8%); course quality (89.3%); and breadth of courses available (85.2%). Less than 85% rated the following areas as either *very good* or *good*: preparation for dissertation research (81.8%) and flexibility to accommodate individual student's needs (75.7%).

As GSBS students, 87.7% of the respondents indicated they authored or co-authored research articles in refereed journals, book chapters, or review. As a GSBS student, 53.1% of the respondents indicated they authored articles in refereed journals, while 45.2% co-authored articles. Over 60% of the respondents indicated that authorships in book chapters or edited volumes and review articles were not applicable to them.

As a GSBS student, over 70% of the respondents indicated they made scientific presentations (including poster presentations) at national conferences/symposia (83.5%) and conferences/symposia in the Texas Medical Center (TMC) (72.0%). Over half of the respondents indicated that they *did not* make scientific presentations (including poster presentations) at international conferences/symposia (65.3%) or at conferences/symposia in the Houston area (other than the TMC) (63.0%) or in Texas (other than in Houston) (52.0%).

The second objective was to determine post-GSBS activity. Respondents were asked to describe their activity in four different areas.

Post-GSBS Training/Education

Immediately upon graduation from the GSBS, the majority of respondents either continued research training (post-doc, research fellow, etc.) (56.4%) or sought employment in a research or science-related position (21.8%). Approximately 48.1% of the respondents indicated they had one to three years of additional research training since graduating from the GSBS, while 26.5% had four to six additional years. Since completion of their GSBS training, the majority of respondents had either post-doctoral training (53.5%), graduate level courses in another area (13.7%), or trained in a residency program (9.4%). Approximately 19.3% of the respondents did not have any additional training since completion of their GSBS training. As for degrees earned after graduating from the GSBS, 16.4% of the respondents indicated they earned a Ph.D., 8.7% earned an M.D. degree, and 2.6% earned a J.D.

degree, while 14.7% indicated they earned a degree other than what was listed on the survey, such as an M.B.A. or an M.P.H.

When the respondents *first entered* GSBS, 71.3% indicated their *primary career goal* as academic research and teaching at a research-intensive institution, while *at this time*, 47.0% indicated it was a primary career goal. When the respondents *first entered* GSBS, 5.7% indicated scientific management or administration was a primary goal, while *at this time*, 22.6% of the respondents indicated it was a primary career goal. When respondents first entered GSBS, 39.9% of the respondents indicated their *secondary career goal* as industrial research and/or development, while at this time, 27.1% indicated it was a secondary career goal.

Approximately 64.4% of the respondents indicated that their advisor (thesis/dissertation supervisory professor) was either *very helpful or helpful* in assisting them in obtaining their first position after graduation from the GSBS. Over 85% of the respondents indicated that their training at the GSBS was either *very effective* or *effective* in preparing them for their first position after graduation from the GSBS (85.9%).

Current Employment History

Approximately 90.3% of the respondents were currently employed. The majority of respondents indicated their current *employment field* as research and development (35.0%), education/teaching (20.9%), or health care practice (20.2%). When asked to indicate current *employment type*, the majority of respondents indicated it as either a research intensive university, including professional schools (30.4%), business industry (16.6%), health care facility (16.1%), or a research institute (13.2%). Approximately 44.4% of the respondents have been employed by their current employer for one to five years, 17.1% have been employed for six to ten years, and 15.4% have been with their current employer for over fifteen years. The majority of respondents indicated their current job title as either lab or unit manager or supervisor (63.0%) or a faculty title (professor, associate, assistant, instructor) (28.9%). Over half of the respondents were employed outside of Texas, within the United States (56.9%), while 32.4% were employed within the Houston area (in Harris or adjacent counties).

Relationship of GSBS Education and Employment History

The majority of respondents, 86.3%, indicated they were either *very appropriately employed* or *appropriately employed*. In addition, over 80% of the respondents indicated that their current employment was either *very related* or *related* to the training they received at GSBS (82.1%) and that the GSBS training was either *very effective* or *effective* in preparing them for their current position (81.9%).

Honors, Awards, and Accomplishments

During their career, 41.5% of respondents received an award from their institution or employer, 32.8% received an award for research, 27.0% received an award from a professional society, and 11.6% received an award for teaching. During their career, 19.0% of respondents have been named as an inventor on a science or technology-related patent, 17.9% have disclosed a discovery for the consideration of filing a patent, 15.9% have filed for a science or technology related patent, and 11.8% have developed for commercialization or licensing any animal models, antibodies, cell lines, plasmids or other research-related materials.

During their career, 24.6% of the respondents have been a principal investigator (PI) on a peer-reviewed research grant (>$100,000) similar to an R01 from the NIH, NSF or another major federal government agency and 25.8% of the respondents have been a PI on any other type of research grant received from a state or federal government, non-profit agency, or commercial entity. Approximately 42.4% of respondents have not received a major grant of the types listed on the survey, during their career. Approximately 71.3% of the respondents have, during their career, authored or co-authored refereed original research articles, 41.0% have authored or co-authored review articles, and 37.9% have authored or co-authored book chapters. Using their own criterion(a) for success, 82.7% of the respondents feel they have been either *very successful* or *successful* thus far in their career.

The third objective was to determine alumni demographics. Over half of the respondents indicated they were a citizen or permanent resident of the United States (91.3%), White/Caucasian (70.5%), female (63.5%), and born between 1955 and 1974 (54.0%). Almost three-fourths of the respondents, 74.4%, received a Ph.D. degree from the GSBS, while 31.5% received an M.S. degree. The top three programs respondents indicated they received their degree from are as follows: Biochemistry and Molecular Biology (11.8%); Cancer Biology (11.2%); and Genes and Development (8.1%). Approximately 12.2% of the respondents indicated they did not receive their degree from a formalized program at GSBS.

One major goal at GSBS is to build a lasting relationship with alumni. Respondents were asked to indicate their interest in ten electronic methods GSBS is reviewing to maintain contact with alumni. There were no methods in which 85% or more of the respondents were either *very interested* or *interested*, while over 50% of the respondents were either *very interested* or *interested* in the following four areas: news and updates about GSBS (75.0%); alumni newsletter (72.0%); alumni directory (69.4%); and ability to connect with current students/faculty (55.1%). The five methods in which the respondents were either *very uninterested* or *uninterested* are: blogging (46.5%); message boards (35.3%); e-mail account (32.6%); make an on-line donation (25.1%); and career/job posting center (23.1%).

Approximately 69.2% of the respondents indicated that at the time of their graduation, they *did not* have significant education-related debt. Of the respondents who had debt, the majority indicated it was either between *$10,000 but less than $50,000* (55.7%) or *less than $10,000* (24.9%).

There were significant differences in response patterns by six demographic groups. There were three significant differences by gender, twenty differences by ethnicity, twenty-two differences by employment location, 39 differences by what the respondent did immediately upon graduation, 62 differences by year of graduation, and 138 significant differences by current employer type.

Respondents were encouraged to comment on any aspect of their experience at the GSBS. Table 5.1 summarizes the respondents' comments. A complete listing of the general comments can be found in Appendix D, Table D.2. Respondents' also made comments to specific questions which can be found in Appendix D, Table D.1.

Table 5.1
GSBS Alumni Survey
Summary of General Comments

Category	# of Respondents	% Respondents
Satisfied	83	40.5%
Dissatisfied	6	2.9%
Advisors/Mentors/PIs/Professors	20	9.8%
Career Options	16	7.8%
Grant Writing	7	3.4%
Programs/Courses/Research	34	16.6%
Other Comments	39	19.0%
Total	205	100.0%

B. Study Limitations

The survey response rate of 41.1% may or may not represent the views of all alumni. A response rate closer to 70% is desirable. Due to the changes in the survey questions, it was not possible to compare the responses from 2009 alumni survey with the responses from 2004 alumni survey.

The validity of the overall course evaluation indicates that the questions defining the preparation of GSBS alumni section, post-GSBS activity section, and alumni demographics section of the evaluation were not distinct enough to show two different concepts. These survey results are useful for program planning efforts.

C. Implications for the Graduate School of Biomedical Sciences

The survey results indicate that improvement may be needed in the following areas: preparation and delivery of scientific talks; preparation of scientific publications; understanding career options for Ph.D.'s in biomedical sciences; preparation for dissertation research; flexibility of GSBS curriculum in accommodating individual student's needs; and helpfulness of advisor in assisting with obtaining first position post-graduation. To build a lasting relationship with alumni, GSBS should focus on an electronic format alumni directory, alumni newsletter, and news and updates about GSBS.

D. Suggestions for Future Research

We recommend that the GSBS continue to conduct alumni evaluations to assess student outcomes.

APPENDICES

Appendix A
Evaluation Instrument and Letters

THE UNIVERSITY of TEXAS
HEALTH SCIENCE CENTER AT HOUSTON

THE UNIVERSITY OF TEXAS
MD ANDERSON
CANCER CENTER

GRADUATE SCHOOL of BIOMEDICAL SCIENCES

George M. Stancel, Ph.D.
Dean
John P. McGovern Professor of Biomedical Sciences

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January 29, 2009

Dear GSBS Graduate,

I am writing to ask for your help completing the enclosed Alumni Survey. We conduct this survey every 4-5 years to help us improve GSBS programs and to guide our planning efforts. Recent graduates have often heard me say that "I measure the success of our School by the success of our graduates." I believe this deeply and thus view the experiences of our alumni as a critical and essential component of any evaluation effort.

This survey is anonymous and your name is not requested. It is conducted by an independent office, and we receive only a summary of the results without any identifiers that could link your name to the information you provide. Please take a few minutes to complete the survey questions and add any narrative comments you would like to make.

As Dean, I consider your response and that of our other graduates to be one of the most important pieces of information needed to improve our programs, to provide the best possible educational experience, and to assist our current and future students in other important ways. We cannot improve without your input, and I will be personally grateful for your assistance with this important task.

Thank you for your help.

Sincerely yours,

George M. Stancel

George M. Stancel, Ph.D.

enclosure

GSBS ALUMNI SURVEY 2009

The purpose of this survey is to ask alumni their perceptions as to how GSBS can improve their curriculum and programs. The information will be compiled in summary format for review by GSBS, UTHSC-H and M. D. Anderson executive administration.

Responses are completely confidential. All groups with less than ten responses will be combined into a similar group to maintain anonymity. The control number is for mailing purposes only. The survey will be conducted, analyzed and reported by the Office of Institutional Research at M. D. Anderson Cancer Center. If you have technical issues with the survey, please contact Dr. Marilyn Greer, Director, Institutional Research.

If you would prefer to complete the survey on-line, please copy the link below to the address bar of your internet browser. Enter the four digit control number from the first page of the survey to the internet page so that after survey completion you will not receive further reminder notices. ***Please return the survey by February 23, 2009.***

http://www2.mdanderson.org/app/ir/GSBSAS/GSBSASA.cfm

Thank you for your participation in this very important assessment effort.

Complete and return your survey in the postage-paid envelop to:

GSBS ALUMNI SURVEY 2009
ATTN: Dr. Marilyn Greer
Institutional Research, Unit 1420
1400 Pressler St.
Houston, TX 77230

Institutional Research Board (IRB) reviewed and exempted by UTHSC-H and MDACC.

Control Number

PREPARATION OF GSBS ALUMNI *(PLEASE CHECK THE BOX)*

1. How adequate was the GSBS in preparing you in the following areas:

	VERY ADEQUATE	ADEQUATE	NEITHER ADEQUATE NOR INADEQUATE	INADEQUATE	VERY INADEQUATE
a. Candidacy exams	☐	☐	☐	☐	☐
b. Course work	☐	☐	☐	☐	☐
c. Preparation and delivery of scientific talks	☐	☐	☐	☐	☐
d. Preparation of scientific publications	☐	☐	☐	☐	☐
e. Research training (for thesis/ dissertation)	☐	☐	☐	☐	☐
f. Understanding career options for Ph.D.'s in biomedical sciences	☐	☐	☐	☐	☐

2. How effective was the GSBS experience in providing you with:

	VERY EFFECTIVE	EFFECTIVE	NEITHER EFFECTIVE NOR INEFFECTIVE	INEFFECTIVE	VERY INEFFECTIVE
a. The knowledge you are using today	☐	☐	☐	☐	☐
b. The skills you are using today	☐	☐	☐	☐	☐

	VERY SATISFIED	SATISFIED	NEITHER SATISFIED NOR DISSATISFIED	DISSATISFIED	VERY DISSATISFIED
3. How satisfied are you that the education you received at GSBS prepared you to accomplish your goals?	☐	☐	☐	☐	☐
4. How satisfied are you with the education you received at GSBS?	☐	☐	☐	☐	☐

	STRONGLY RECOMMEND	RECOMMEND	NEITHER RECOMMEND NOR DISCOURAGE	DISCOURAGE	STRONGLY DISCOURAGE
5. Would you recommend the GSBS to other individuals for their graduate training?	☐	☐	☐	☐	☐

6. Based upon your own experience after leaving GSBS how important do you believe training in the areas below should be for GSBS students?

	VERY IMPORTANT	IMPORTANT	NEITHER IMPORTANT NOR UNIMPORTANT	UNIMPORTANT	VERY UNIMPORTANT
a. Career planning	☐	☐	☐	☐	☐
b. Industrial research	☐	☐	☐	☐	☐
c. Professional skills such as:					
1. Skills for leading a lab or research group	☐	☐	☐	☐	☐
2. Verbal communication skills	☐	☐	☐	☐	☐
3. Writing scientific manuscripts and research proposals	☐	☐	☐	☐	☐
d. Teaching	☐	☐	☐	☐	☐

PREPARATION OF GSBS ALUMNI (Continued)

7. Rate the GSBS curriculum in the following areas:

	VERY GOOD	GOOD	NEITHER GOOD NOR POOR	POOR	VERY POOR
a. Advanced training in your Program (or research area for unaffiliated students)	☐	☐	☐	☐	☐
b. Breadth of courses available	☐	☐	☐	☐	☐
c. Course quality	☐	☐	☐	☐	☐
d. Flexibility to accommodate individual student's needs	☐	☐	☐	☐	☐
e. Preparation for dissertation research	☐	☐	☐	☐	☐

8. As a GSBS student, did you author or co-author any research articles in refereed journals, book chapters or reviews?

1. YES → ***CONTINUE TO QUESTION 9***
2. NO → ***PROCEED TO QUESTION 10*** (SKIP QUESTION 9)

9. As a GSBS student, indicate what type of authorship you completed from the listing below:

	CO-AUTHOR	AUTHOR	NOT APPLICABLE
a. Articles in refereed journals	☐	☐	☐
b. Book chapters or edited volumes	☐	☐	☐
c. Review articles	☐	☐	☐

10. As a GSBS student, did you make scientific presentations (including poster presentations) in any of the following venues:

	YES	NO
a. Conferences/symposia in the:		
1. Texas Medical Center (TMC)	☐	☐
2. Houston area *(other than the TMC)*	☐	☐
3. Texas *(other than in Houston)*	☐	☐
b. National conferences/symposia	☐	☐
c. International conferences/symposia	☐	☐

POST-GSBS ACTIVITY (Continued)

Post-GSBS Training/Education

11. What did you do immediately upon graduation from the GSBS? *(CIRCLE ONE)*

1. CONTINUED RESEARCH TRAINING
   (POST-DOC, RESEARCH FELLOW, ETC.) → ***CONTINUE TO QUESTION 12***
2. CONTINUED EDUCATION IN ANOTHER FIELD
   (MEDICINE, LAW, BUSINESS, ETC.) → ***PROCEED TO QUESTION 13*** (SKIP QUESTION 12)
3. SOUGHT EMPLOYMENT IN A RESEARCH OR SCIENCE-RELATED POSITION
   → ***PROCEED TO QUESTION 13*** (SKIP QUESTION 12)
4. SOUGHT EMPLOYMENT IN A NON-RESEARCH OR NON-SCIENCE POSITION
   → ***PROCEED TO QUESTION 13*** (SKIP QUESTION 12)
5. OTHER ***(SPECIFY)***_____ → ***PROCEED TO QUESTION 13*** (SKIP QUESTION 12)

12. Indicate the <u>total</u> <u>number</u> of years of additional <u>research</u> training you have received since you graduated from the GSBS. *(CIRCLE ONE)*

1. LESS THAN ONE YEAR
2. ONE TO THREE YEARS
3. FOUR TO SIX YEARS
4. OVER SIX YEARS

13. Indicate the type of additional training you have had since completion of your GSBS training. *(CIRCLE ALL THAT APPLY)*

1. GRADUATE LEVEL COURSES IN ANOTHER AREA
2. GRADUATE LEVEL COURSES IN YOUR FIELD
3. POST-DOCTORAL TRAINING
4. RESIDENCY
5. OTHER → ***SPECIFY***: _____
6. NO ADDITIONAL TRAINING SINCE COMPLETION OF GSBS TRAINING

14. Indicate all degrees earned after graduating from GSBS. *(CIRCLE ALL THAT APPLY)*

1. D.D.S.
2. DR.P.H.
3. J.D.
4. M.D.
5. PH.D.
6. OTHER – ***SPECIFY***: _____

POST-GSBS ACTIVITY (Continued)

15. *When you first entered GSBS*, what were your primary and secondary career goals?

	MARK ONE IN EACH COLUMN		
	PRIMARY	**SECONDARY**	**NOT A CAREER GOAL**
a. Academic research and teaching at a Research-intensive institution	☐	☐	☐
b. Industrial research and/or development	☐	☐	☐
c. Scientific management or administration	☐	☐	☐
d. Undergraduate teaching and research	☐	☐	☐
e. Other:	☐	☐	☐

SPECIFY: _____

16. *At this time*, what are your primary and secondary career goals?

	MARK ONE IN EACH COLUMN		
	PRIMARY	**SECONDARY**	**NOT A CAREER GOAL**
a. Academic research and teaching at a Research -intensive institution	☐	☐	☐
b. Industrial research and/or development	☐	☐	☐
c. Scientific management or administration	☐	☐	☐
d. Undergraduate teaching and research	☐	☐	☐
e. Other:	☐	☐	☐

SPECIFY: _____

17. How helpful was your advisor (thesis/dissertation supervisory professor) in assisting you in obtaining your <u>first</u> <u>position</u> after graduation from the GSBS?	**VERY HELPFUL** ☐	**HELPFUL** ☐	**NEITHER HELPFUL NOR UNHELPFUL** ☐	**UNHELPFUL** ☐	**VERY UNHELPFUL** ☐
18. How effectively did your training at the GSBS prepare you for your <u>first</u> <u>position</u> after graduation from the GSBS?	**VERY EFFECTIVE** ☐	**EFFECTIVE** ☐	**NEITHER EFFECTIVE NOR INEFFECTIVE** ☐	**INEFFECTIVE** ☐	**VERY INEFFECTIVE** ☐

Current Employment History

19. Are you currently employed?

1. YES
2. NO → ***PROCEED TO QUESTION 25*** (SKIP QUESTIONS 20 THROUGH 24)

POST-GSBS ACTIVITY (Continued)

20. Indicate your current employment FIELD. *(CIRCLE ALL THAT APPLY)*

1. ADMINISTRATION OR MANAGEMENT
2. EDUCATION/TEACHING
3. HEALTH CARE PRACTICE
4. RESEARCH AND DEVELOPMENT
5. POSTDOCTORAL TRAINEE
6. OTHER ***(SPECIFY)***_____

21. Indicate your current employer TYPE. *(CIRCLE ONE)*

1. BUSINESS/INDUSTRY
2. COMMUNITY COLLEGE OR TECHNICAL INSTITUTE
3. ELEMENTARY OR SECONDARY SCHOOL
4. GOVERNMENT
5. HEALTH CARE FACILITY
6. LIBERAL ARTS OR PRIMARILY TEACHING COLLEGE
7. RESEARCH INSTITUTE
8. RESEARCH INTENSIVE UNIVERSITY, INCLUDING PROFESSIONAL SCHOOLS
9. SELF-EMPLOYED
10. OTHER ***(SPECIFY)***_____

22. How long have you been employed by your current employer? *(CIRCLE ONE)*

1. LESS THAN ONE YEAR
2. ONE TO FIVE YEARS
3. SIX TO TEN YEARS
4. ELEVEN TO FIFTEEN YEARS
5. OVER FIFTEEN YEARS

23. What is your current job title? *(CIRCLE ALL THAT APPLY)*

1. DIRECTOR, HEAD, OR CHAIRPERSON
2. FACULTY TITLE *(PROFESSOR, ASSOCIATE, ASSISTANT, INSTRUCTOR)*
3. LAB OR UNIT MANAGER OR SUPERVISOR
4. RESEARCH-SCIENTIST OR SIMILAR POSITION
5. TRAINEE TITLE *(POST-DOC FELLOW, RESIDENT, INTERN)*
6. OTHER ***(SPECIFY):*** _____

24. Where are you employed? *(CIRCLE ONE)*

1. WITHIN THE HOUSTON AREA (IN HARRIS OR ADJACENT COUNTIES)
2. WITHIN TEXAS (OUTSIDE OF THE HOUSTON AREA)
3. OUTSIDE OF TEXAS, WITHIN THE UNITED STATES
4. OUTSIDE OF THE UNITED STATES

POST-GSBS ACTIVITY (Continued)

Relationship of GSBS Education and Employment History

25. Given your level of education, training, and experience, do you feel you are currently: ***(CIRCLE ONE)***

1. VERY APPROPRIATELY EMPLOYED
2. APPROPRIATELY EMPLOYED
3. NEITHER APPROPRIATELY NOR INAPPROPRIATELY EMPLOYED
4. UNDER OR INAPPROPRIATELY EMPLOYED
5. VERY UNDER OR INAPPROPRIATELY EMPLOYED

26. How related is your <u>current employment</u> to the training you received at GSBS?	**VERY RELATED** ☐	**RELATED** ☐	**NEITHER RELATED NOR UNRELATED** ☐	**UNRELATED** ☐	**VERY UNRELATED** ☐
27. How effectively did your GSBS training prepare you for your <u>current position</u>?	**VERY EFFECTIVE** ☐	**EFFECTIVE** ☐	**NEITHER EFFECTIVE NOR INEFFECTIVE** ☐	**INEFFECTIVE** ☐	**VERY INEFFECTIVE** ☐

Honors, Awards and Accomplishments

28. During your career, have you received any of the following: ***(CIRCLE ALL THAT APPLY)***

1. AWARD FROM YOUR INSTITUTION OR EMPLOYER
2. AWARD FROM A PROFESSIONAL SOCIETY
3. AWARD FOR RESEARCH
4. AWARD FOR TEACHING

29. During your career, have you ever: ***(CIRCLE ALL THAT APPLY)***

1. BEEN NAMED AS AN INVENTOR ON A SCIENCE OR TECHNOLOGY-RELATED PATENT?
2. DEVELOPED FOR COMMERCIALIZATION OR LICENSING ANY ANIMAL MODELS, ANTIBODIES, CELL LINES, PLASMIDS OR OTHER RESEARCH-RELATED MATERIALS?
3. DISCLOSED A DISCOVERY FOR THE CONSIDERATION OF FILING A PATENT?
4. FILED FOR A SCIENCE OR TECHNOLOGY-RELATED PATENT?

30. During your career, have you ever been a principal investigator (PI) on a major (see definition of major) grant described as: ***(CIRCLE ALL THAT APPLY)***

1. PEER-REVIEWED RESEARCH GRANT (> $100,000) SIMILAR TO AN RO1 FROM NIH, NSF, OR ANOTHER MAJOR FEDERAL GOVERNMENT AGENCY?
2. PEER-REVIEWED RESEARCH GRANT (>50,000) FROM A NON-PROFIT AGENCY OR FOUNDATION TO PERFORM RESEARCH?
3. RESEARCH GRANT (> 50,000) FROM A COMMERCIAL ENTITY (E.G., DRUG COMPANY)?
4. RECEIVED ANY OTHER TYPE OF RESEARCH GRANT FROM A STATE OR FEDERAL GOVERNMENT, NON-PROFIT AGENCY, OR COMMERCIAL ENTITY?
5. I HAVE NOT RECEIVED A MAJOR GRANT OF THE TYPES LISTED ABOVE DURING MY CAREER.

POST-GSBS ACTIVITY (Continued)

31. During your career, have you authored or co-authored any of the following: *(CIRCLE ALL THAT APPLY)*

1. BOOK CHAPTERS
2. BOOKS OR EDITED VOLUMES
3. REFEREED ORIGINAL RESEARCH ARTICLES
4. REVIEW ARTICLES

32. Using your own criterion(a) for success, how successful do you feel you have been thus far in your career?

VERY SUCCESSFUL	SUCCESSFUL	NEITHER SUCCESSFUL NOR UNSUCCESSFUL	UNSUCCESSFUL	VERY UNSUCCESSFUL
☐	☐	☐	☐	☐

ALUMNI DEMOGRAPHICS

33. In what year did you graduate from GSBS? *(COMPLETE):* _____

34. What degree did you receive at GSBS? (CIRCLE ALL THAT APPLY)

1 M.S.

2 PH.D.

35. Indicate in which of the following formalized Programs you received your diploma from GSBS:

1. SPECIALIZED M.S. PROGRAM IN GENETIC COUNSELING
2. SPECIALIZED M.S. PROGRAM IN MEDICAL PHYSICS
3. SPECIALIZED M.S. PROGRAM IN ORAL BIOMATERIALS
4. PROGRAM IN BIOCHEMISTRY AND MOLECULAR BIOLOGY
5. PROGRAM IN BIOMATHEMATICS AND BIOSTATISTICS
6. PROGRAM IN CANCER BIOLOGY
7. PROGRAM IN CELL AND REGULATORY BIOLOGY
8. PROGRAM IN MOLECULAR CARCINOGENESIS
9. PROGRAM IN GENES AND DEVELOPMENT
10. PROGRAM IN HUMAN AND MOLECULAR GENETICS
11. PROGRAM IN IMMUNOLOGY
12. PROGRAM IN INTEGRATIVE BIOLOGY
13. PROGRAM IN MEDICAL PHYSICS
14. PROGRAM IN MICROBIOLOGY AND MOLECULAR GENETICS
15. PROGRAM IN MOLECULAR PATHOLOGY
16. PROGRAM IN NEUROSCIENCE
17. PROGRAM IN PHARMACOLOGY
18. PROGRAM IN REGULATORY BIOLOGY
19. PROGRAM IN REPRODUCTIVE BIOLOGY
20. PROGRAM IN TOXICOLOGY
21. PROGRAM IN VIROLOGY AND GENE THERAPY
22. NOT AFFILIATED WITH ANY OF THE ABOVE PROGRAMS
23. OTHER ***(SPECIFY):***_____

ALUMNI DEMOGRAPHICS (Continued)

36. One major goal at GSBS is to build a lasting relationship with alumni. The list below represents methods which we are reviewing to maintain contact with our GSBS alumni. Please indicate your interest in each electronic format.

	VERY INTERESTED	INTERESTED	NEITHER INTERESTED NOR UNINTERESTED	UNINTERESTED	VERY UNINTERESTED
a. Ability to connect with current students/faculty	☐	☐	☐	☐	☐
b. Alumni Directory	☐	☐	☐	☐	☐
c. Alumni Newsletter	☐	☐	☐	☐	☐
d. Alumni Surveys	☐	☐	☐	☐	☐
e. Blogging	☐	☐	☐	☐	☐
f. Career/job posting center	☐	☐	☐	☐	☐
g. E-mail account	☐	☐	☐	☐	☐
h. Make an on-line donation	☐	☐	☐	☐	☐
i. Message boards	☐	☐	☐	☐	☐
j. News and Updates about GSBS	☐	☐	☐	☐	☐

37. As a GSBS student, at the time of your graduation, did you have significant education-related debt?

1. NO
2. YES → ***IF YES, HOW MUCH?***
   1. LESS THAN $10,000
   2. $10,000 BUT LESS THAN $50,000
   3. $50,000 BUT LESS THAN $100,000
   4. $100,000 BUT LESS THAN $250,000
   5. MORE THAN $250,000

38. What is your gender?

1. FEMALE
2. MALE

39. Are you a citizen or permanent resident of the United States (U.S.)?

1. YES ***CONTINUE TO QUESTION 40***
2. NOT CERTAIN ***PROCEED TO QUESTION 41*** (SKIP QUESTION 40)
3. NO ***PROCEED TO QUESTION 41*** (SKIP QUESTION 40)

ALUMNI DEMOGRAPHICS (Continued)

40. If you are a U.S. citizen or permanent resident of the U.S., what is your ethnicity? *(CIRCLE ONE)*

1. AMERICAN INDIAN/ALASKAN NATIVE
2. ASIAN
3. BLACK OR AFRICAN-AMERICAN
4. HISPANIC/LATINO
5. NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER
6. WHITE/CAUCASIAN
7. OTHER ***(SPECIFY):***_____

41. What is your year of birth?

(COMPLETE): **19 _____**

COMMENTS ***We value additional comments from you about any aspect of your experience at the GSBS, especially what you would encourage us to continue doing and what you would encourage us to do differently. (Use additional pages if necessary.)***

_____

_____

_____

_____

_____

_____

_____

_____

_____

Thank you for your help! Please return the survey in the enclosed postage-paid envelope to:

Marilyn J. Greer, Ph.D.
Director, Institutional Research
The University of Texas
M. D. Anderson Cancer Center
PO BOX 301402
Houston, TX 77230

Postcard

February 9, 2009

Dear GSBS Graduate:

One week ago you received a survey entitled "GSBS Alumni Survey 2009." Your response is very important to us. Please mail the completed original survey in the postage paid envelope provided with the survey. If you have already responded, thank you for your interest and participation.

If you have questions, or need an additional copy of the survey, please contact Dr. Marilyn Greer at 713-563-6030.

Office of Institutional Research
P.O. Box 301402
Houston, TX 77230

Second Mailing Letter

THE UNIVERSITY of TEXAS
HEALTH SCIENCE CENTER AT HOUSTON

THE UNIVERSITY OF TEXAS
MD ANDERSON
CANCER CENTER

GRADUATE SCHOOL of BIOMEDICAL SCIENCES

George M. Stancel, Ph.D.
Dean
John P. McGovern Professor of Biomedical Sciences

PO Box 20334
Houston, Texas 77225-0334
George.M.Stancel@uth.tmc.edu

713 500 9850
713 500 9859 *fax*

February 23, 2009

Dear GSBS Graduate,

About three weeks ago you received a request in which you were asked to assess the efficiency and effectiveness of student services and curriculum at The University of Texas Graduate School of Biomedical Sciences at Houston. This survey is also an integral part of our GSBS accreditation process which assesses student outcomes. As of today, we have not yet received your completed questionnaire.

Our school has undertaken this study because of the belief that alumni opinions should be taken into consideration during the planning processes that address student services and curriculum which will be relevant to the needs of future GSBS students.

I am writing to you again because of the significance each questionnaire has to the usefulness of this study. In order for the results of this study to be truly representative of the opinions of all GSBS alumni, it is essential that each person return their questionnaire.

In the event that your questionnaire has been misplaced, a replacement is enclosed. If you would like to complete this survey on-line, please copy the link below to your Internet browser bar and press enter:

http://www2.mdanderson.org/app/ir/GSBSAS/GSBSASA.cfm

Your cooperation is important and greatly appreciated.

Sincerely,

George M. Stancel

George M. Stancel, Ph.D.
Dean

enclosure

Third Mailing Letter

THE UNIVERSITY of TEXAS
HEALTH SCIENCE CENTER AT HOUSTON

THE UNIVERSITY OF TEXAS
MD ANDERSON
CANCER CENTER

GRADUATE SCHOOL of BIOMEDICAL SCIENCES

George M. Stancel, Ph.D.
Dean
John P. McGovern Professor of Biomedical Sciences

PO Box 20334
Houston, Texas 77225-0334
George.M.Stancel@uth.tmc.edu

713 500 9850
713 500 9859 *fax*

March 24, 2009

Dear GSBS Graduate,

One month ago you received a request in which you were asked to assess the efficiency and effectiveness of student services and curriculum at The University of Texas Graduate School of Biomedical Sciences at Houston. This survey is also an integral part of our GSBS accreditation process which assesses student outcomes. As of today, we have not yet received your completed questionnaire.

Our school has undertaken this study because of the belief that alumni opinions should be taken into consideration during the planning processes that address student services and curriculum which will be relevant to the needs of future GSBS students.

I am writing to you again because of the significance each questionnaire has to the usefulness of this study. In order for the results of this study to be truly representative of the opinions of all GSBS alumni, it is essential that each person return their questionnaire.

In the event that your questionnaire has been misplaced, a replacement is enclosed. If you would like to complete this survey on-line, please copy the link below to your Internet browser bar and press enter:

http://www2.mdanderson.org/app/ir/GSBSAS/GSBSASA.cfm

Your cooperation is important and greatly appreciated.

Sincerely,

George M. Stancel

George M. Stancel, Ph.D.
Dean

enclosure

Appendix B
Frequency Distributions

Table B.1
GSBS Alumni Survey
Summary of Frequencies

PREPARATION OF GSBS ALUMNI

1. How adequate was the GSBS in preparing you in the following areas:	**Total Respondents**	**Very Adequate**	**Adequate**	**Neither Adequate Nor Inadequate**	**Inadequate**	**Very Inadequate**
a. Candidacy exams	560	36.4%	49.3%	11.1%	2.5%	0.7%
b. Course work	577	38.5%	55.0%	5.4%	0.9%	0.2%
c. Preparation and delivery of scientific talks	577	40.4%	44.4%	10.2%	4.7%	0.3%
d. Preparation of scientific publications	579	32.8%	42.6%	16.9%	7.4%	0.3%
e. Research training (for thesis/dissertation)	570	50.7%	40.5%	7.7%	0.7%	0.4%
f. Understanding career options for Ph.D.'s in biomedical sciences	538	16.9%	37.9%	28.3%	13.4%	3.5%

2. How effective was the GSBS experience in providing you with:	**Total Respondents**	**Very Effective**	**Effective**	**Neither Effective Nor Ineffective**	**Ineffective**	**Very Ineffective**
a. The knowledge you are using today	582	40.9%	46.4%	10.5%	1.9%	0.3%
b. The skills you are using today	538	40.5%	43.9%	12.6%	3.0%	0.0%

3. How satisfied are you that the education you received at GSBS prepared you to accomplish your goals?	**Total Respondents**	**Very Satisfied**	**Satisfied**	**Neither Satisfied Nor Dissatisfied**	**Dissatisfied**	**Very Dissatisfied**
	584	50.2%	40.2%	7.2%	1.9%	0.5%

4. How satisfied are you with the education you received at GSBS?	**Total Respondents**	**Very Satisfied**	**Satisfied**	**Neither Satisfied Nor Dissatisfied**	**Dissatisfied**	**Very Dissatisfied**
	584	53.4%	40.9%	4.5%	0.9%	0.3%

5. Would you recommend the GSBS to other individuals for their graduate training?	**Total Respondents**	**Strongly Recommend**	**Recommend**	**Neither Recommend Nor Discourage**	**Discourage**	**Strongly Discourage**
	579	54.2%	37.7%	7.3%	0.5%	0.3%

Table B.1
GSBS Alumni Survey
Summary of Frequencies

PREPARATION OF GSBS ALUMNI (Continued)

6. Based upon your own experience after leaving GSBS, how important do you believe training in the areas below should be for GSBS students?	**Total Respondents**	**Very Important**	**Important**	**Neither Important Nor Unimportant**	**Unimportant**	**Very Unimportant**
a. Career Planning	579	62.0%	33.5%	4.1%	0.2%	0.2%
b. Industrial Research	567	24.9%	49.8%	23.8%	1.1%	0.4%
c. Professional skills such as:						
1. Skills for leading a lab or research group	577	54.3%	39.0%	6.4%	0.3%	0.0%
2. Verbal communication skills	580	76.0%	22.9%	0.9%	0.2%	0.0%
3. Writing scientific manuscripts and research proposals	578	76.2%	22.1%	1.7%	0.0%	0.0%
d. Teaching	565	26.0%	55.1%	18.2%	0.7%	0.0%

7. Rate the GSBS curriculum in the following areas:	**Total Respondents**	**Very Good**	**Good**	**Neither Good Nor Poor**	**Poor**	**Very Poor**
a. Advanced training in your Program (or research area for unaffiliated students)	571	45.3%	44.5%	7.7%	2.3%	0.2%
b. Breadth of courses available	574	34.7%	50.5%	12.0%	2.6%	0.2%
c. Course quality	574	34.5%	54.8%	9.1%	1.4%	0.2%
d. Flexibility to accommodate individual student's needs	568	33.8%	41.9%	19.9%	4.0%	0.4%
e. Preparation for dissertation research	546	31.5%	50.3%	15.8%	2.2%	0.2%

8. As a GSBS student, did you author or co-author any research articles in refereed journals, book chapters or review?	**Total Respondents**	**Percent**
YES Continue to Question 9	458	87.7%
NO Proceed to Question 10 (Skip Question 9)	64	12.3%
Total	522	100.0%

9. As a GSBS student, indicate what type of authorship you completed from the listing below:	**Total Respondents**	**Co-Author**	**Author**	**Not Applicable**
a. Articles in refereed journals	409	45.2%	53.1%	1.7%
b. Book chapters or edited volumes	362	27.6%	10.5%	61.9%
c. Review articles	341	24.0%	13.8%	62.2%

Table B.1
GSBS Alumni Survey
Summary of Frequencies

PREPARATION OF GSBS ALUMNI (Continued)

10. As a GSBS student, did you make scientific presentations (including poster presentations) in any of the following venues:	**Total Respondents**	**YES**	**NO**
a. Conferences/symposia in the:			
1. Texas Medical Center (TMC)	550	72.0%	28.0%
2. Houston area (other than the TMC)	508	37.0%	63.0%
3. Texas (other than in Houston)	512	48.0%	52.0%
b. National conferences/symposia	564	83.5%	16.5%
c. International conferences/symposia	519	34.7%	65.3%

POST-GSBS ACTIVITY

Post-GSBS Training/Education

11. What did you do immediately upon graduation from the GSBS?	**Total Respondents**	**Percent**
CONTINUED RESEARCH TRAINING (POST-DOC, RESEARCH FELLOW, ETC.)	287	56.4%
CONTINUED EDUCATION IN ANOTHER FIELD (MEDICINE, LAW, BUSINESS, ETC.)	63	12.4%
SOUGHT EMPLOYMENT IN A RESEARCH OR SCIENCE-RELATED POSITION	111	21.8%
SOUGHT EMPLOYMENT IN A NON-RESEARCH OR NON-SCIENCE POSITION	19	3.7%
OTHER (Specify)	29	5.7%
Total	509	100.0%

12. Indicate the total number of years of additional research training you have received since you graduated from the GSBS.	**Total Respondents**	**Percent**
LESS THAN ONE YEAR	66	17.3%
ONE TO THREE YEARS	183	48.1%
FOUR TO SIX YEARS	101	26.5%
OVER SIX YEARS	31	8.1%
Total	381	100.0%

Table B.1
GSBS Alumni Survey
Summary of Frequencies

POST-GSBS ACTIVITY (Continued)

13. Indicate the type of additional training you have had since completion of your GSBS training. (Select ALL that Apply)	**Total Respondents**	**Percent**
GRADUATE LEVEL COURSES IN ANOTHER AREA	80	13.7%
GRADUATE LEVEL COURSES IN YOUR FIELD	30	5.1%
POST-DOCTORAL TRAINING	313	53.5%
RESIDENCY	55	9.4%
OTHER (Specify)	81	13.8%
NO ADDITIONAL TRAINING SINCE COMPLETION OF GSBS TRAINING	113	19.3%

14. Indicate all degrees earned after graduating from GSBS. (Select ALL that Apply)	**Total Respondents**	**Percent**
D.D.S.	5	0.9%
DR.P.H.	1	0.2%
J.D.	15	2.6%
M.D	51	8.7%
PH.D.	96	16.4%
OTHER (Specify)	86	14.7%

15. *When you first entered* GSBS, what were your primary and secondary career goals?	**Total Respondents**	**Primary**	**Secondary**	**Not a Career Goal**
a. Academic research and teaching at a research-intensive institution	543	71.3%	15.1%	13.6%
b. Industrial research and/or development	479	17.3%	39.9%	42.8%
c. Scientific management or administration	439	5.7%	24.8%	69.5%
d. Undergraduate teaching and research	448	9.4%	36.6%	54.0%
e. Other (Specify)	154	41.6%	9.7%	48.7%

16. *At this time,* what are your primary and secondary career goals?	**Total Respondents**	**Primary**	**Secondary**	**Not a Career Goal**
a. Academic research and teaching at a research-intensive institution	453	47.0%	18.3%	34.7%
b. Industrial research and/or development	417	23.3%	27.1%	49.6%
c. Scientific management or administration	399	22.6%	28.6%	48.8%
d. Undergraduate teaching and research	383	9.7%	30.8%	59.5%
e. Other (Specify)	209	61.7%	8.6%	29.7%

Table B.1
GSBS Alumni Survey
Summary of Frequencies

POST-GSBS ACTIVITY (Continued)

17. How helpful was your advisor (thesis/dissertation supervisory professor) in assisting you in obtaining your first position after graduation from the GSBS?	Total Respondents	Very Helpful	Helpful	Neither Helpful Nor Unhelpful	Unhelpful	Very Unhelpful
	577	35.1%	29.3%	25.8%	5.5%	4.3%

18. How effectively did your training at the GSBS prepare you for your first position after graduation from the GSBS?	Total Respondents	Very Effective	Effective	Neither Effective Nor Ineffective	Ineffective	Very Ineffective
	575	45.4%	40.5%	11.5%	1.7%	0.9%

Current Employment History

19. Are you currently employed?	Total Respondents	Percent
YES	512	90.3%
NO Proceed to Question 25 (Skip Questions 20 through 24)	55	9.7%
Total	567	100.0%

20. Indicate your current employment FIELD. (Select ALL that Apply)	Total Respondents	Percent
ADMINISTRATION OR MANAGEMENT	93	15.9%
EDUCATION/TEACHING	122	20.9%
HEALTH CARE PRACTICE	118	20.2%
RESEARCH AND DEVELOPMENT	205	35.0%
POSTDOCTORAL TRAINEE	71	12.1%
OTHER (Specify)	85	14.5%

Table B.1
GSBS Alumni Survey
Summary of Frequencies

POST-GSBS ACTIVITY (Continued)

21. Indicate your current employer TYPE.	Total Respondents	Percent
BUSINESS/INDUSTRY	86	16.6%
COMMUNITY COLLEGE OR TECHNICAL INSTITUTE	10	1.9%
ELEMENTARY OR SECONDARY SCHOOL	4	0.8%
GOVERNMENT	39	7.5%
HEALTH CARE FACILITY	83	16.1%
LIBERAL ARTS OR PRIMARILY TEACHING COLLEGE	8	1.5%
RESEARCH INSTITUTE	68	13.2%
RESEARCH INTENSIVE UNIVERSITY, INCLUDING PROFESSIONAL SCHOOLS	157	30.4%
SELF-EMPLOYED	33	6.4%
OTHER (Specify)	29	5.6%
Total	517	100.0%

22. How long have you been employed by your current employer?	Total Respondents	Percent
LESS THAN ONE YEAR	65	12.5%
ONE TO FIVE YEARS	230	44.4%
SIX TO TEN YEARS	89	17.1%
ELEVEN TO FIFTEEN YEARS	55	10.6%
OVER FIFTEEN YEARS	80	15.4%
Total	519	100.0%

23. What is your current job title? (Select ALL that Apply)	Total Respondents	Percent
DIRECTOR, HEAD, OR CHAIRPERSON	72	12.3%
FACULTY TITLE (PROFESSOR, ASSOCIATE, ASSISTANT, INSTRUCTOR)	169	28.9%
LAB OR UNIT MANAGER OR SUPERVISOR	37	63.0%
RESEARCH-SCIENTIST OR SIMILAR POSITION	56	9.6%
TRAINEE TITLE (POST-DOC FELLOW, RESIDENT, INTERN)	78	13.3%
OTHER (Specify)	165	28.2%

Table B.1
GSBS Alumni Survey
Summary of Frequencies

POST-GSBS ACTIVITY (Continued)

24. Where are you employed?	**Total Respondents**	**Percent**
WITHIN THE HOUSTON AREA (IN HARRIS OR ADJACENT COUNTIES)	169	32.4%
WITHIN TEXAS (OUTSIDE THE HOUSTON AREA)	35	6.7%
OUTSIDE OF TEXAS, WITHIN THE UNITED STATES	296	56.9%
OUTSIDE OF THE UNITED STATES	21	4.0%
Total	521	100.0%

Relationship of GSBS Education and Employment History

25. Given your level of education, training, and experience, do you feel you are currently:	**Total Respondents**	**Percent**
VERY APPROPRIATELY EMPLOYED	272	48.0%
APPROPRIATELY EMPLOYED	217	38.3%
NEITHER APPROPRIATELY NOR INAPPROPRIATELY EMPLOYED	43	7.6%
UNDER OR INAPPROPRIATELY EMPLOYED	28	4.9%
VERY UNDER OR INAPPROPRIATELY EMPLOYED	7	1.2%
Total	567	100.0%

26. How related is your current employment to the training you received at GSBS?	**Total Respondents**	**Very Related**	**Related**	**Neither Related Nor Unrelated**	**Unrelated**	**Very Unrelated**
	562	41.9%	40.2%	9.1%	6.0%	2.8%

27. How effectively did your GSBS training prepare you for your current position?	**Total Respondents**	**Very Effective**	**Effective**	**Neither Effective Nor Ineffective**	**Ineffective**	**Very Ineffective**
	562	34.0%	47.9%	14.4%	2.5%	1.2%

Table B.1
GSBS Alumni Survey
Summary of Frequencies

POST-GSBS ACTIVITY (Continued)

Honors, Awards and Accomplishments

28. During your career, have you received any of the following: (Select ALL that Apply)	**Total Respondents**	**Percent**
AWARD FROM YOUR INSTITUTION OR EMPLOYER	243	41.5%
AWARD FROM A PROFESSIONAL SOCIETY	158	27.0%
AWARD FOR RESEARCH	192	32.8%
AWARD FOR TEACHING	68	11.6%

29. During your career, have you ever: (Select ALL that Apply)	**Total Respondents**	**Percent**
BEEN NAMED AS AN INVENTOR ON A SCIENCE OR TECHNOLOGY-RELATED PATENT?	111	19.0%
DEVELOPED FOR COMMERCIALIZATION OR LICENSING ANY ANY ANIMAL MODELS, ANTIBODIES, CELL LINES, PLASMIDS OR OTHER RESEARCH-RELATED MATERIALS?	69	11.8%
DISCLOSED A DISCOVERY FOR THE CONSIDERATION OF FILING A PATENT?	105	17.9%
FILED FOR A SCIENCE OR TECHNOLOGY-RELATED PATENT?	93	15.9%

30. During your career, have you ever been a principal investigator (PI) on a major grant described as : (Select ALL that Apply)	**Total Respondents**	**Percent**
PEER-REVIEWED RESEARCH GRANT (>$100,000) SIMILAR TO AN R01 FROM NIH, NSF, OR ANOTHER MAJOR FEDERAL GOVERNMENT AGENCY?	144	24.6%
PEER-REVIEWED RESEARCH GRANT (>50,000) FROM A NON-PROFIT AGENCY OR FOUNDATION TO PERFORM RESEARCH?	115	19.7%
RESEARCH GRANT (GREATER THAN 50,000) FROM A COMMERCIAL ENTITY (E.G. DRUG COMPANY)?	53	9.1%
RECEIVED ANY OTHER TYPE OF RESEARCH GRANT FROM A STATE OR FEDERAL GOVERNMENT, NON-PROFIT AGENCY, OR COMMERCIAL ENTITY?	151	25.8%
I HAVE NOT RECEIVED A MAJOR GRANT OF THE TYPES LISTED ABOVE DURING MY CAREER	248	42.4%

Table B.1
GSBS Alumni Survey
Summary of Frequencies

POST-GSBS ACTIVITY (Continued)

31. During your career, have you authored or co-authored any of the following: (Select ALL that Apply)	Total Respondents	Percent
BOOK CHAPTERS	222	37.9%
BOOKS OR EDITED VOLUMES	58	9.9%
REFEREED ORIGINAL RESEARCH ARTICLES	417	71.3%
REVIEW ARTICLES	240	41.0%

32. Using your own criterion(a) for success, how successful do you feel you have been thus far in your career?	Total Respondents	Very Successful	Successful	Neither Successful Nor Unsuccessful	Unsuccessful	Very Unsuccessful
	573	26.5%	56.2%	14.3%	3.0%	0.0%

ALUMNI DEMOGRAPHICS

33. In what year did you graduate?	Total Respondents	Percent
1970 OR EARLIER	18	3.1%
1971 – 1980	78	13.6%
1981 – 1990	110	19.2%
1991 – 2000	160	27.9%
2001 OR LATER	207	36.2%
Total	573	100.0%

34. What degree did you receive at GSBS? (Select ALL that Apply)	Total Respondents	Percent
M.S.	184	31.5%
PH.D.	435	74.4%

Table B.1
GSBS Alumni Survey
Summary of Frequencies

ALUMNI DEMOGRAPHICS (Continued)

35. Indicate in which of the following formalized Programs you received your diploma from GSBS:	**Total Respondents**	**Percent**
SPECIALIZED M.S. PROGRAM IN GENETIC COUNSELING	15	2.6%
SPECIALIZED M.S. PROGRAM IN MEDICAL PHYSICS	25	4.4%
SPECIALIZED M.S. PROGRAM IN ORAL BIOMATERIALS	2	0.4%
PROGRAM IN BIOCHEMISTRY AND MOLECULAR BIOLOGY	67	11.8%
PROGRAM IN BIOMATHEMATICS AND BIOSTATISTICS	2	0.4%
PROGRAM IN CANCER BIOLOGY	64	11.2%
PROGRAM IN CELL AND REGULATORY BIOLOGY	8	1.4%
PROGRAM IN MOLECULAR CARCINOGENESIS	6	1.1%
PROGRAM IN GENES AND DEVELOPMENT	46	8.1%
PROGRAM IN HUMAN AND MOLECULAR GENETICS	41	7.2%
PROGRAM IN IMMUNOLOGY	32	5.6%
PROGRAM IN INTEGRATIVE BIOLOGY	4	0.7%
PROGRAM IN MEDICAL PHYSICS	18	3.2%
PROGRAM IN MICROBIOLOGY AND MOLECULAR GENETICS	23	4.0%
PROGRAM IN MOLECULAR PATHOLOGY	11	1.9%
PROGRAM IN NEUROSCIENCE	15	2.6%
PROGRAM IN PHARMACOLOGY	17	3.0%
PROGRAM IN REGULATORY BIOLOGY	2	0.4%
PROGRAM IN REPRODUCTIVE BIOLOGY	9	1.6%
PROGRAM IN TOXICOLOGY	7	1.2%
PROGRAM IN VIROLOGY AND GENE THERAPY	17	3.0%
NOT AFFILIATED WITH ANY OF THE ABOVE PROGRAMS	70	12.2%
OTHER (Specify)	68	12.0%
Total	569	100.0%

Table B.1
GSBS Alumni Survey
Summary of Frequencies

ALUMNI DEMOGRAPHICS (Continued)

36. One major goal at GSBS is to build a lasting relationship with alumni. The list below represents methods which we are reviewing to maintain contact with our GSBS alumni. Please indicate your interest in each electronic format.	**Total Respondents**	**Very Interested**	**Interested**	**Neither Interested Nor Uninterested**	**Uninterested**	**Very Uninterested**
a. Ability to connect with current students/faculty.	547	15.0%	40.1%	30.3%	11.3%	3.3%
b. Alumni Directory	555	20.4%	49.0%	22.0%	6.1%	2.5%
c. Alumni Newsletter	553	19.7%	52.3%	19.5%	6.1%	2.4%
d. Alumni Surveys	543	10.5%	36.3%	37.2%	13.1%	2.9%
e. Blogging	527	3.6%	10.1%	39.8%	29.6%	16.9%
f. Career/job posting center	537	15.5%	29.4%	32.0%	15.8%	7.3%
g. E-mail account	537	10.6%	23.6%	33.2%	22.5%	10.1%
h. Make an on-line donation	530	5.5%	21.3%	48.1%	15.7%	9.4%
i. Message boards	521	4.2%	15.9%	44.6%	22.8%	12.5%
j. News and Updates about GSBS	546	20.3%	54.7%	18.9%	3.7%	2.4%

37. As a student, at time of your graduation did you have significant education-related debt?		**Total Respondents**	**Percent**
NO		397	69.2%
YES		177	30.8%
	Total	574	100.0%
IF YES, HOW MUCH?			
LESS THAN $10,000		46	24.9%
$10,000 BUT LESS THAN $50,000		103	55.7%
$50,000 BUT LESS THAN $100,000		28	15.1%
$100,000 BUT LESS THAN $250,000		8	4.3%
MORE THAN $250,000		0	0.0%
	Total	185	100.0%

38. What is your gender?		**Total Respondents**	**Percent**
FEMALE		282	63.5%
MALE		162	36.5%
	Total	444	100.0%

Table B.1
GSBS Alumni Survey
Summary of Frequencies

ALUMNI DEMOGRAPHICS (Continued)

39. Are you a citizen or permanent resident of the United States (U.S.)?	**Total Respondents**	**Percent**
YES	526	91.3%
NOT CERTAIN (SKIP QUESTION 40)	5	0.9%
NO (SKIP QUESTION 40)	45	7.8%
Total	576	100.0%

40. If you are a U.S. citizen or permanent resident of the U.S., what is your ethnicity?	**Total Respondents**	**Percent**
AMERICAN INDIAN/ALASKAN NATIVE	1	0.2%
ASIAN	120	22.9%
BLACK OR AFRICAN-AMERICAN	8	1.5%
HISPANIC/LATINO	18	3.4%
NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER	0	0.0%
WHITE/CAUCASIAN	370	70.5%
OTHER (Specify)	8	1.5%
Total	525	100.0%

41. What was your year of birth? (SPECIFY)	**Total Respondents**	**Percent**
1922 – 1939	15	2.7%
1940 – 1954	130	23.3%
1955 – 1964	129	23.1%
1965 – 1974	173	30.9%
1975 OR LATER	112	20.0%
Total	559	100.0%

Appendix C
Wilcoxon Rank Sum Results

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Significant Differences by Gender

Female respondents were *more likely* than ***Male*** respondents to:

- indicate that the GSBS was adequate in preparing them for the candidacy exams (q.1a)
- be interested in an electronic career/job posting center (q.36f)

Male respondents were *more likely* than ***female*** respondents to feel that given their level of education, training, and experience they are appropriately employed (q.25).

Significant Differences by Ethnicity (Performed comparisons only on groups with 10 or more respondents)

Asian respondents were *more likely* than ***White/Caucasian*** respondents to:

- indicate that their advisor (thesis/dissertation supervisory professor) was helpful in assisting them obtain their first position after graduation from the GSBS (q.17).
- indicate that their current employment was related to the training they received at GSBS (q.26).
- indicate that their GSBS training effectively prepared them for their current position (q.27).
- be interested in the following electronic formats:
    - ability to connect with current students/faculty (q.36a)
    - Alumni Directory (q.36b)
    - Alumni Newsletter (q.36c)
    - Alumni Surveys (q.36d)
    - Blogging (q.36e)
    - Career/job posting (q.36f)
    - E-mail account (q.36g)
    - Make an on-line donation (q.36h)
    - Message boards (q.36i)
    - News and Updates about GSBS (q.36j)

Asian respondents were *more likely* than ***Hispanic/Latino*** respondents to:

- be interested in the following electronic formats:
    - Alumni Directory (q.36b)
    - Blogging (q.36e)

White/Caucasian respondents were *more likely* than ***Asian*** respondents to:

- indicate that the GSBS was adequate in preparing them in:
    - coursework (q.1b)
    - preparation and delivery of scientific talks (q.1c)
- rate the GSBS course quality as good (q.7c)
- feel that they have been successful thus far in their career (q.32).

White/Caucasian respondents were *more likely* than ***Hispanic/Latino*** respondents to indicate that the GSBS was adequate in preparing them for course work (q.1b).

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Significant Differences by What Respondents Did Immediately Upon Graduation from the GSBS

Respondents who ***continued research training (post-doc, research fellow, etc.)*** immediately upon graduation from the GSBS were *more likely* than respondents who ***continued education in another field (medicine, law, business, etc.)*** immediately upon graduation from the GSBS to:

- indicate that their GSBS training effectively prepared them for their first position after graduation from the GSBS (q.18)
- indicate that their current employment was related to the training they received at GSBS (q.26).
- be interested in an electronic career/job posting center (q.36f)

Respondents who ***continued research training (post-doc, research fellow, etc.)*** immediately upon graduation from the GSBS were *more likely* than respondents who ***sought employment in a research or science-related position*** immediately upon graduation from the GSBS to:

- believe that, based upon their experience after leaving GSBS, training in professional skills such as writing scientific manuscripts and research proposals should be important for GSBS students (q.6c3).
- indicate that their advisor (thesis/dissertation supervisory professor) was helpful in assisting them obtain their first position after graduation from the GSBS (q.17).

Respondents who ***continued research training (post-doc, research fellow, etc.)*** immediately upon graduation from the GSBS were *more likely* than respondents who ***sought employment in a non-research or non-science position*** immediately upon graduation from the GSBS to believe that, based upon their experience after leaving GSBS, training in the following areas should be important for GSBS students:

- Career planning (q.6a)
- Professional skills such as: writing scientific manuscripts and research proposals (q.6c3).

Respondents who ***continued research training (post-doc, research fellow, etc.)*** immediately upon graduation from the GSBS were *more likely* than respondents who ***did something "Other" than what was listed*** immediately upon graduation from the GSBS to:

- indicate that the GSBS was adequate in preparing them in research training (for thesis/dissertation) (q.1e)
- believe that, based upon their experience after leaving GSBS, training in career planning should be important for GSBS students (q.6a).
- indicate that their advisor (thesis/dissertation supervisory professor) was helpful in assisting them obtain their first position after graduation from the GSBS (q.17).
- indicate that their GSBS training effectively prepared them for their first position after graduation from the GSBS (q.18)
- be interested in an electronic Alumni Directory (q.36b)

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Respondents who ***continued education in another field (medicine, law, business, etc.)*** immediately upon graduation from the GSBS were *more likely* than respondents who ***continued research training (post-doc, research fellow, etc.)*** immediately upon graduation from the GSBS to:

- indicate that the GSBS was adequate in preparing them to understand career options for Ph.D.'s in biomedical sciences (q.1f).
- believe that, based upon their experience after leaving GSBS, training in teaching should be important for GSBS students (q.6d).
- feel that given their level of education, training, and experience they are appropriately employed (q.25).
- feel that they have been successful thus far in their career (q.32).

Respondents who ***continued education in another field (medicine, law, business, etc.)*** immediately upon graduation from the GSBS were more likely than respondents who ***sought employment in a research or science-related position*** immediately upon graduation from the GSBS to:

- indicate that the GSBS was adequate in preparing them to understand career options for Ph.D.'s in biomedical sciences (q.1f).
- believe that, based upon their experience after leaving GSBS, training in professional skills such as writing scientific manuscripts and research proposals should be important for GSBS students (q.6c3).
- feel that given their level of education, training, and experience they are appropriately employed (q.25).
- feel that they have been successful thus far in their career (q.32).

Respondents who ***continued education in another field (medicine, law, business, etc.)*** immediately upon graduation from the GSBS were more likely than respondents who ***sought employment in a non-research or non-science position*** immediately upon graduation from the GSBS to:

- believe that, based upon their experience after leaving GSBS, training in professional skills such as writing scientific manuscripts and research proposals should be important for GSBS students (q.6c3).
- feel that they have been successful thus far in their career (q.32).

Respondents who ***continued education in another field (medicine, law, business, etc.)*** immediately upon graduation from the GSBS were more likely than respondents who ***did something "Other" than what was listed*** immediately upon graduation from the GSBS to:

- indicate that the GSBS was adequate in preparing them to understand career options for Ph.D.'s in biomedical sciences (q.1f).
- indicate that their advisor (thesis/dissertation supervisory professor) was helpful in assisting them obtain their first position after graduation from the GSBS (q.17).
- feel that given their level of education, training, and experience they are appropriately employed (q.25).
- feel that they have been successful thus far in their career (q.32).

Respondents who ***sought employment in a research or science-related position*** immediately upon graduation from the GSBS were *more likely* than respondents who ***continued research training (post-doc, research fellow, etc.)*** immediately upon graduation from the GSBS to:

- indicate that the GSBS was adequate in preparing them for course work (q.1b)
- believe that, based upon their experience after leaving GSBS, training in teaching should be important for GSBS students (q.6d).
- rate the GSBS course quality as good (q.7c)

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Respondents who ***sought employment in a research or science-related position*** immediately upon graduation from the GSBS were more likely than respondents who ***continued education in another field (medicine, law, business, etc.)*** immediately upon graduation from the GSBS to:

- indicate that the GSBS experience was effective in providing them with:
  - the knowledge they are using today (q.2a)
  - the skills they are using today (q.2b)
- indicate that their GSBS training effectively prepared them for their first position after graduation from the GSBS (q.18)
- indicate that their current employment was related to the training they received at GSBS (q.26).

Respondents who ***sought employment in a research or science-related position*** immediately upon graduation from the GSBS were *more likely* than respondents who ***sought employment in a non-research or non-science position*** immediately upon graduation from the GSBS to believe that, based upon their experience after leaving GSBS, training in the following areas should be important for GSBS students:

- Professional skills such as:
  - skills for leading a lab or research group (q.6c1).
  - writing scientific manuscripts and research proposals (q.6c3).

Respondents who ***sought employment in a research or science-related position*** immediately upon graduation from the GSBS were *more likely* than respondents who ***did something "Other" than what was listed*** immediately upon graduation from the GSBS to:

- indicate that their GSBS training effectively prepared them for their first position after graduation from the GSBS (q.18)
- be interested in making an on-line donation (q.36h)

Respondents who ***did something "Other" than what was listed*** immediately upon graduation from the GSBS were *more likely* than respondents who ***continued research training (post-doc, research fellow, etc.)*** immediately upon graduation from the GSBS to indicate that the GSBS was adequate in preparing them in course work (q.1b).

Respondents who ***did something "Other" than what was listed*** immediately upon graduation from the GSBS were more likely than respondents who ***sought employment in a non-research or non-science position*** immediately upon graduation from the GSBS to believe that, based upon their experience after leaving GSBS, training in professional skills such as writing scientific manuscripts and research proposals should be important for GSBS students (q.6c3).

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Significant Differences by Employment Location

Respondents who were employed ***within the Houston area (in Harris or Adjacent Counties)*** are *more likely* than respondents who were employed ***within Texas (outside of the Houston area)*** to indicate that their current employment was related to the training they received at GSBS (q.26).

Respondents who are employed ***within the Houston area (in Harris or Adjacent Counties)*** are *more likely* than respondents who are employed ***outside of Texas, within the United States*** to:

- be interested in the following electronic formats:
  - ability to connect with current students/faculty (q.36a)
  - Blogging (q.36e)
  - Career/job posting (q.36f)
  - E-mail account (q.36g)
  - Make an on-line donation (q.36h)
  - Message boards (q.36i)

Respondents who are employed ***within the Houston area (in Harris or Adjacent Counties)*** are *more likely* than respondents who are employed ***outside of the United States*** to indicate that the GSBS was adequate in preparing them course work (q.1b).

Respondents who were employed ***within Texas (outside the Houston area)*** are *more likely* than respondents who were employed ***within the Houston area (in Harris or Adjacent Counties)*** to:

- be satisfied that the education they received at GSBS prepared them to accomplish their goals (q.3).
- recommend the GSBS to other individuals for their graduate training (q.5).
- believe that, based upon their experience after leaving GSBS, training in teaching should be important for GSBS students (q.6d).
- feel that they have been successful thus far in their career (q.32).

Respondents who are employed ***within Texas (outside the Houston area)*** are *more likely* than respondents who are employed ***outside of Texas, within the United States*** to:

- indicate that the GSBS was adequate in preparing them course work (q.1b).
- recommend the GSBS to other individuals for their graduate training (q.5).
- believe that, based upon their experience after leaving GSBS, training in teaching should be important for GSBS students (q.6d).

Respondents who are employed ***within Texas (outside the Houston area)*** are *more likely* than respondents who are employed ***outside of the United States*** to:

- indicate that the GSBS was adequate in preparing them in course work (q.1b).
- be satisfied that the education they received at GSBS prepared them to accomplish their goals (q.3).
- recommend the GSBS to other individuals for their graduate training (q.5).
- feel that they have been successful thus far in their career (q.32).

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Respondents who were employed ***outside of Texas, within the United States*** are *more likely* than respondents who were employed ***within the Houston area (in Harris or Adjacent Counties)*** to:

- feel that given their level of education, training, and experience they are appropriately employed (q.25).
- feel that they have been successful thus far in their career (q.32).

Respondents who are employed ***outside of Texas, within the United States*** are *more likely* than respondents who are employed ***outside of the United Sates*** to feel that they have been successful thus far in their career (q.32).

Significant Differences by Current Employer Type (Performed comparisons only on groups with 10 or more respondents)

Respondents whose employer type was ***business/industry*** were *more likely* than respondents whose employer type was a ***community college or technical institute*** to:

- be interested in the following electronic formats:
    - Alumni Surveys (q.36d)
    - Blogging (q.36e)
    - E-mail account (q.36g)
    - Make an on-line donation (q.36h)
    - Message boards (q.36i)

Respondents whose employer type was ***business/industry*** were *more likely* than respondents whose employer type was ***government*** to:

- believe that, based upon their experience after leaving GSBS, training in industrial technology should be important for GSBS students (q.6b).
- be interested in an electronic Alumni Directory (q.36b)

Respondents whose employer type was ***business/industry*** were *more likely* than respondents whose employer type was a ***health care facility*** to:

- believe training in the following areas should be important for GSBS students
    - Career planning (q.6a)
    - Industrial research (q.6b)
- be interested in the following electronic formats:
    - Alumni Directory (q.36b)
    - Alumni Surveys (q.36d)
    - Career/job posting (q.36f)

Respondents whose employer type was ***business/industry*** were *more likely* than respondents whose employer type was a ***research institute*** to:

- believe that, based upon their experience after leaving GSBS, training in industrial technology should be important for GSBS students (q.6b).
- feel that they have been successful thus far in their career (q.32).

Respondents whose employer type was ***business/industry*** were *more likely* than respondents whose employer type was a ***research intensive university, including professional schools*** to believe that, based upon their experience after leaving GSBS, training in industrial technology should be important for GSBS students (q.6b).

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Respondents whose employer type was ***business/industry*** were *more likely* than respondents whose employer type was ***self-employed*** to be interested in an electronic Alumni Directory (q.36b)

Respondents whose employer type was ***business/industry*** were *more likely* than respondents whose employer type was ***"Other" than what was listed*** to believe that, based upon their experience after leaving GSBS, training in industrial technology should be important for GSBS students (q.6b).

Respondents whose employer type was ***government*** were *more likely* than respondents whose employer type was ***community college or technical institute*** to:

- be interested in the following electronic formats:
    - Blogging (q.36e)
    - E-mail account (q.36g)
    - Make an on-line donation (q.36h)
    - Message boards (q.36i)

Respondents whose employer type was ***government*** were *more likely* than respondents whose employer type was ***health care facility*** to believe that, based upon their experience after leaving GSBS, training in industrial technology should be important for GSBS students (q.6b).

Respondents whose employer type was ***government*** were *more likely* than respondents whose employer type was ***research institute*** to feel that they have been successful thus far in their career (q.32).

Respondents whose employer type was a ***health care facility*** were *more likely* than respondents whose employer type was ***business/industry*** to:

- indicate that the GSBS was adequate in preparing them to understand career options for Ph.D.'s in biomedical sciences (q.1f).
- be satisfied that the education they received at GSBS prepared them to accomplish their goals (q.3).
- be satisfied with the education they received at GSBS (q.4).
- recommend the GSBS to other individuals for their graduate training (q.5).
- feel that given their level of education, training, and experience they are appropriately employed (q.25).

Respondents whose employer type was ***health care facility*** were *more likely* than respondents whose employer type was ***community college or technical institute*** to:

- feel that given their level of education, training, and experience they are appropriately employed (q.25).
- be interested in the following electronic formats:
    - Blogging (q.36e)
    - Make an on-line donation (q.36h)
    - Message boards (q.36i)

Respondents whose employer type was ***health care facility*** were *more likely* than respondents whose employer type was ***government*** to:

- indicate that the GSBS was adequate in preparing them for course work (q.1b)
- feel that given their level of education, training, and experience they are appropriately employed (q.25).

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Respondents whose employer type was ***health care facility*** were *more likely* than respondents whose employer type was ***research institute*** to:

- be satisfied that the education they received at GSBS prepared them to accomplish their goals (q.3).
- feel that given their level of education, training, and experience they are appropriately employed (q.25).
- feel that they have been successful thus far in their career (q.32).

Respondents whose employer type was ***health care facility*** were *more likely* than respondents whose employer type was ***research intensive university, including professional schools*** to:

- indicate that the GSBS was adequate in preparing them for course work (q.1b)
- be satisfied that the education they received at GSBS prepared them to accomplish their goals (q.3).
- be satisfied with the education they received at GSBS (q.4).
- recommend the GSBS to other individuals for their graduate training (q.5).
- rate the GSBS curriculum's course quality as good (q.7c).
- feel that given their level of education, training, and experience they are appropriately employed (q.25).
- feel that they have been successful thus far in their career (q.32).

Respondents whose employer type was ***health care facility*** were *more likely* than respondents whose employer type was ***self-employed*** to:

- feel that given their level of education, training, and experience they are appropriately employed (q.25).
- indicate that their current employment was related to the training they received at GSBS (q.26).

Respondents whose employer type was ***health care facility*** were *more likely* than respondents whose employer type was ***"Other" than what was listed*** to:

- be satisfied that the education they received at GSBS prepared them to accomplish their goals (q.3).
- feel that given their level of education, training, and experience they are appropriately employed (q.25).

Respondents whose employer type was a ***research institute*** were *more likely* than respondents whose employer type was ***business/industry*** to:

- indicate that the GSBS was adequate in preparing them to understand career options for Ph.D.'s in biomedical sciences (q.1f).
- rate the GSBS curriculum's advanced training in their Program (or research area for unaffiliated students) as good (q.7a).
- indicate that their advisor (thesis/dissertation supervisory professor) was helpful in assisting them obtain their first position after graduation from the GSBS (q.17).
- indicate that their GSBS training effectively prepared them for their first position after graduation from the GSBS (q.18)
- indicate that their current employment was related to the training they received at GSBS (q.26).
- indicate that their GSBS training effectively prepared them for their current position (q.27).

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Respondents whose employer type was ***research institute*** were *more likely* than respondents whose employer type was ***community college or technical institute*** to:

- indicate that their current employment was related to the training they received at GSBS (q.26).
- indicate that their GSBS training effectively prepared them for their current position (q.27).
- be interested in the following electronic formats:
    - Alumni Surveys (q.36d)
    - Blogging (q.36e)
    - Career/job posting (q.36f)
    - E-mail account (q.36g)
    - Make an on-line donation (q.36h)
    - Message boards (q.36i)

Respondents whose employer type was ***research institute*** were *more likely* than respondents whose employer type was ***government*** to:

- indicate that their current employment was related to the training they received at GSBS (q.26).
- be interested in electronic Alumni Surveys (q.36d)

Respondents whose employer type was ***research institute*** were *more likely* than respondents whose employer type was ***health care facility*** to:

- believe that, based upon their experience after leaving GSBS, training in professional skills such as writing scientific manuscripts and research proposals should be important for GSBS students (q.6c3).
- indicate that their advisor (thesis/dissertation supervisory professor) was helpful in assisting them obtain their first position after graduation from the GSBS (q.17).
- indicate that their GSBS training effectively prepared them for their first position after graduation from the GSBS (q.18)
- indicate that their GSBS training effectively prepared them for their current position (q.27).
- be interested in the following electronic formats:
    - ability to connect with current students/faculty (q.36a)
    - Alumni Directory (q.36b)
    - Alumni Surveys (q.36d)
    - Career/job posting (q.36f)
    - E-mail account (q.36g)

Respondents whose employer type was ***research institute*** were *more likely* than respondents whose employer type was ***research intensive university, including professional schools*** to indicate that their GSBS training effectively prepared them for their first position after graduation from the GSBS (q.18)

Respondents whose employer type was ***research institute*** were *more likely* than respondents whose employer type was ***self-employed*** to:

- indicate that their advisor (thesis/dissertation supervisory professor) was helpful in assisting them obtain their first position after graduation from the GSBS (q.17).
- indicate that their current employment was related to the training they received at GSBS (q.26).
- indicate that their GSBS training effectively prepared them for their current position (q.27).
- be interested in the following electronic formats:
    - ability to connect with current students/faculty (q.36a)
    - Career/job posting (q.36f)

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Respondents whose employer type was ***research institute*** were *more likely* than respondents whose employer type was ***"Other" than what was listed*** to:

- rate the GSBS curriculum's advanced training in their Program (or research area for unaffiliated students) as good (q.7a).
- indicate that their GSBS training effectively prepared them for their first position after graduation from the GSBS (q.18)
- indicate that their current employment was related to the training they received at GSBS (q.26).
- be interested in the ability to connect with current students/faculty in an electronic format (q.36a)

Respondents whose employer type was a ***research intensive university, including professional schools*** were *more likely* than respondents whose employer type was ***business/industry*** to:

- indicate that the GSBS was adequate in preparing them to understand career options for Ph.D.'s in biomedical sciences (q.1f).
- believe that, based upon their experience after leaving GSBS, training in professional skills such as writing scientific manuscripts and research proposals should be important for GSBS students (q.6c3).
- indicate that their current employment was related to the training they received at GSBS (q.26).
- indicate that their GSBS training effectively prepared them for their current position (q.27).

Respondents whose employer type was ***research intensive university, including professional schools*** were *more likely* than respondents whose employer type was ***community college or technical institute*** to:

- indicate that their current employment was related to the training they received at GSBS (q.26).
- indicate that their GSBS training effectively prepared them for their current position (q.27).
- be interested in the following electronic formats:
    - Alumni Newsletter (q.36c)
    - Alumni Surveys (q.36d)
    - E-mail account (q.36g)
    - Make an on-line donation (q.36h)
    - Message boards (q.36i)

Respondents whose employer type was ***research intensive university, including professional schools*** were *more likely* than respondents whose employer type was ***government*** to indicate that their current employment was related to the training they received at GSBS (q.26).

Respondents whose employer type was ***research intensive university, including professional schools*** were *more likely* than respondents whose employer type was ***health care facility*** to:

- believe that, based upon their experience after leaving GSBS, training in professional skills such as writing scientific manuscripts and research proposals should be important for GSBS students (q.6c3).
- indicate that their current employment was related to the training they received at GSBS (q.26).
- be interested in the following electronic formats:
    - ability to connect with current students/faculty (q.36a)
    - Alumni Directory (q.36b)
    - Career/job posting (q.36f)

Respondents whose employer type was ***research intensive university, including professional schools*** were *more likely* than respondents whose employer type was ***research institute*** to:

- feel that given their level of education, training, and experience they are appropriately employed (q.25).
- feel that they have been successful thus far in their career (q.32).

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Respondents whose employer type was ***research intensive university, including professional schools*** were *more likely* than respondents whose employer type was ***self-employed*** to:

- indicate that their current employment was related to the training they received at GSBS (q.26).
- indicate that their GSBS training effectively prepared them for their current position (q.27).
- be interested in the following electronic formats:
    - ability to connect with current students/faculty (q.36a)
    - Alumni Directory (q.36b)

Respondents whose employer type was ***research intensive university, including professional schools*** were *more likely* than respondents whose employer type was ***"Other" than what was listed*** to indicate that their current employment was related to the training they received at GSBS (q.26).

Respondents whose employer type was ***self-employed*** were *more likely* than respondents whose employer type was ***business/industry*** to:

- indicate that the GSBS was adequate in preparing them in:
    - course work (q.1b)
    - preparation of scientific publications (q.1d)
    - understanding career options for Ph.D.'s in biomedical sciences (q.1f)
- believe that, based upon their experience after leaving GSBS, training in teaching should be important for GSBS students (q.6d).
- rate the GSBS flexibility to accommodate individual student's needs as good (q.7d)
- feel that they have been successful thus far in their career (q.32).

Respondents whose employer type was ***self-employed*** were *more likely* than respondents whose employer type was ***community college or technical institute*** to:

- indicate that the GSBS was adequate in preparing them for course work (q.1b)
- feel that they have been successful thus far in their career (q.32).
- be interested in the following electronic formats:
    - Blogging (q.36e)
    - Message boards (q.36i)

Respondents whose employer type was ***self-employed*** were *more likely* than respondents whose employer type was ***government*** to:

- indicate that the GSBS was adequate in preparing them for course work (q.1b)
- believe that, based upon their experience after leaving GSBS, teaching should be important for GSBS students (q.6d).

Respondents whose employer type was ***self-employed*** were *more likely* than respondents whose employer type was ***health care facility*** to:

- indicate that the GSBS was adequate in preparing them for preparation of scientific publications (q.1d)
- believe that, based upon their experience after leaving GSBS, training in industrial technology should be important for GSBS students (q.6b).
- rate the GSBS flexibility to accommodate individual student's needs as good (q.7d)

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Respondents whose employer type was ***self-employed*** were *more likely* than respondents whose employer type was ***research institute*** to:

- believe that, based upon their experience after leaving GSBS, training in industrial technology should be important for GSBS students (q.6b).
- believe that, based upon their experience after leaving GSBS, teaching should be important for GSBS students (q.6d).
- feel that they have been successful thus far in their career (q.32).

Respondents whose employer type was ***self-employed*** were *more likely* than respondents whose employer type was ***research intensive university, including professional schools*** to:

- indicate that the GSBS was adequate in preparing them in:
  - coursework (q.1b)
  - preparation of scientific publications (q.1d)
- believe that, based upon their experience after leaving GSBS, training in industrial technology should be important for GSBS students (q.6b).
- rate the flexibility to accommodate individual student's needs as good (q.7d).
- feel that they have been successful thus far in their career (q.32).

Respondents whose employer type was ***self-employed*** were *more likely* than respondents whose employer type was ***"Other" than what was listed*** to believe that, based upon their experience after leaving GSBS, training in industrial technology should be important for GSBS students (q.6b).

Respondents whose employer type was ***"Other" than what was listed*** were *more likely* than respondents whose employer type was ***business/industry*** to:

- indicate that the GSBS was adequate in preparing them to understand career options for Ph.D.'s in biomedical sciences (q.1f).
- rate the GSBS curriculum's course quality as good (q.7c).

Respondents whose employer type was ***"Other" than what was listed*** were *more likely* than respondents whose employer type was ***health care facility*** to believe that, based upon their experience after leaving GSBS, training in professional skills such as writing scientific manuscripts and research proposals should be important for GSBS students (q.6c3).

Respondents whose employer type was ***"Other" than what was listed*** were *more likely* than respondents whose employer type was ***research institute*** to:

- believe that, based upon their experience after leaving GSBS, training in professional skills such as verbal communication skills should be important for GSBS students (q.6c3).
- rate the GSBS course quality as good (q.7c).
- feel that they have been successful thus far in their career (q.32).

Respondents whose employer type was ***"Other" than what was listed*** were *more likely* than respondents whose employer type was ***research intensive university, including professional schools*** to rate the GSBS course quality as good (q.7c).

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Significant Differences by Year of Graduation

Respondents who graduated in ***1980 or earlier*** were *more likely* than respondents who graduated ***between 1981 – 1990*** to:

- indicate that the GSBS was adequate in preparing them for course work (q.1b)
- believe that, based upon their experience after leaving GSBS, teaching should be important for GSBS students (q.6d).

Respondents who graduated in ***1980 or earlier*** were *more likely* than respondents who graduated ***between 1991 – 2000*** to:

- indicate that the GSBS was adequate in preparing them for course work (q.1b)
- believe that, based upon their experience after leaving GSBS, teaching should be important for GSBS students (q.6d).
- feel that they have been successful thus far in their career (q.32).

Respondents who graduated in ***1980 or earlier*** were *more likely* than respondents who graduated ***between 2001 - 2008*** to:

- indicate that the GSBS was adequate in preparing them for:
    - course work (q.1b)
    - preparation of scientific publications (1d)
- believe that, based upon their experience after leaving GSBS, teaching should be important for GSBS students (q.6d).
- rate the GSBS curriculum in the following areas as good:
    - flexibility to accommodate individual student's needs (q.7d)
    - preparation for dissertation research (q.7e)
- feel that given their level of education, training, and experience they are appropriately employed (q.25).
- feel that they have been successful thus far in their career (q.32).

Respondents who graduated ***between 1981 - 1990*** were *more likely* than respondents who graduated in ***1980 or earlier*** to be interested in the having the electronic ability to connect with current students/faculty (q.36a).

Respondents who graduated ***between 1981 - 1990*** were *more likely* than respondents who graduated ***between 1991 – 2000*** to feel that they have been successful thus far in their career (q.32).

Respondents who graduated ***between 1981 - 1990*** were *more likely* than respondents who graduated ***between 2001 - 2008*** to:

- indicate that the GSBS was adequate in preparing them for preparation of scientific publications (q.1d)
- rate the flexibility of the GSBS curriculum to accommodate individual student's needs as good (q.7d).
- feel that given their level of education, training, and experience they are appropriately employed (q.25).
- feel that they have been successful thus far in their career (q.32).

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Respondents who graduated ***between 1991 – 2000*** were *more likely* than respondents who graduated in ***1980 or earlier*** to:

- be interested in the following electronic formats:
    - ability to connect with current students/faculty (q.36a)
    - Alumni Directory (q.36b)
    - Career/job posting (q.36f)
    - E-mail account (q.36g)
    - Make an on-line donation (q.36h)
    - Message boards (q.36i)

Respondents who graduated ***between 1991 – 2000*** were *more likely* than respondents who graduated ***between 1981 - 1990*** to:

- indicate that their advisor (thesis/dissertation supervisory professor) was helpful in assisting them obtain their first position after graduation from the GSBS (q.17).
- indicate that their current employment was related to the training they received at GSBS (q.26).
- be interested in the following electronic formats:
    - ability to connect with current students/faculty (q.36a)
    - Blogging (q.36e)
    - Career/job posting (q.36f)
    - Make an on-line donation (q.36h)
    - Message boards (q.36i)

Respondents who graduated ***between 1991 - 2000*** were *more likely* than respondents who graduated ***between 2001 - 2008*** to:

- indicate that the GSBS was adequate in preparing them for preparation of scientific publications (q.1d)
- feel that given their level of education, training, and experience they are appropriately employed (q.25).
- feel that they have been successful thus far in their career (q.32).

Respondents who graduated ***between 2001 – 2008*** were *more likely* than respondents who graduated in ***1980 or earlier*** to:

- believe that, based upon their experience after leaving GSBS, training in career planning should be important for GSBS students (q.6a).
- indicate that their current employment was related to the training they received at GSBS (q.26).
- be interested in the following electronic formats:
    - ability to connect with current students/faculty (q.36a)
    - Alumni Directory (q.36b)
    - Alumni Newsletter (q.36c)
    - Alumni Surveys (q.36d)
    - Blogging (q.36e)
    - Career/job posting (q.36f)
    - E-mail account (q.36g)
    - Make an on-line donation (q.36h)
    - Message boards (q.36i)

Table C.1
GSBS Alumni Survey
Summary of Wilcoxon Rank Sum Tests

Respondents who graduated ***between 2001 - 2008*** were *more likely* than respondents who graduated ***between 1981 - 1990*** to:

- believe that, based upon their experience after leaving GSBS, training in career planning should be important for GSBS students (q.6a).
- indicate that their current employment was related to the training they received at GSBS (q.26).
- be interested in the following electronic formats:
    - ability to connect with current students/faculty (q.36a)
    - Alumni Directory (q.36b)
    - Alumni Newsletter (q.36c)
    - Blogging (q.36e)
    - Career/job posting (q.36f)
    - E-mail account (q.36g)
    - Make an on-line donation (q.36h)
    - Message boards (q.36i)
    - News and Updates about GSBS (q.36j)

Respondents who graduated ***between 2001 - 2008*** were *more likely* than respondents who graduated ***between 1991 - 2000*** to:

- believe that, based upon their experience after leaving GSBS, training in the following should be important for GSBS students:
    - career planning (q.6a)
    - industrial research (q.6b)
- be interested in the following electronic formats:
    - ability to connect with current students/faculty (q.36a)
    - Career/job posting (q.36f)
    - E-mail account (q.36g)
    - News and Updates about GSBS (q.36j)

Appendix D
Summary of Comments

Table D.1
GSBS Alumni Survey
Comments by Question

11. What did you do immediately upon graduation from the GSBS? Other (SPECIFY)

- Ph.D. at another institute
- Clinical practice
- Continued training in research and medicine (1 & 2)
- Opened a private practice
- Parenting
- Became stay at home Mother
- Stayed home w/small children
- Stay at home Mom
- Had a baby, then another; stayed home to raise them for 9 years
- Law school
- Sales
- Returned to military service
- Continued in research
- Sought employment
- Joined faculty on the tenure track
- Continued faculty position at UT Dental Branch
- Gyn Onc fellowship
- M.D. degree
- Took time off for health and family
- Taught in high school and college
- Clinical
- Employment in my field – Genetic Counseling
- Job in medical field for genetic counseling
- Sought employment in health care field
- Both research training and medicine
- Began employment as a medical physicist
- Sought employment in a clinical position
- Returned to active duty in U.S. Army
- Self-employment (started a company)

13. Indicate the type of additional training you have had since completion of your GSBS training. Other (SPECIFY)

- Completed Ph.D. @ Emory University
- Industrial, managerial, business school
- Degree/licenses in other fields
- Short courses at Cold Spring Harbor - Yeast Genetics
- Continuing education – 2 responses
- Continuing ed. courses as a physical therapist
- Continuing medical education
- CE courses
- Continuing education in conferences and seminars
- Fellowship – research + clinical
- Ph.D. – 2 responses

Table D.1
GSBS Alumni Survey
Comments by Question

- Dental school – 2 responses
- Medical school – 4 responses
- During sabbatical leave
- DDS
- Fellowship (Clinical)
- Teacher certification program
- Instrument specific training
- Project Investigator
- Regulatory Affairs Certification (Professional society)
- Computer and Business Administration
- Courses at meetings
- Correspondence @ OSU, sales and management training, computer courses
- Went to law school and am a patent attorney
- Clinical Fellow
- AUTM Basic Licensing course
- Certificate in clinical trials
- Clinical Chemist
- Nuclear Regulatory Commission courses
- Law school
- Law
- Computer classes at HCC
- Secondary (8-12) Leader Certification
- Faculty
- Medical school/residency Mayo Clinic
- FDA Regs, Process Validation, etc. - FDA Law
- Clinical pharmacology
- Further research - lab work non-post-doctoral
- Clinical fellowship – 4 responses
- Attending in Gyn Onc @ Washington University at St. Louis
- Received nomination for foreign M.D.
- Medical technology
- Senior Staff Fellow NCI
- Research in clinical department (translational)
- Clinical research, program management
- Another field
- Safety in personnel management
- M.D. and residency and post-residency fellowship
- Several short training workshops
- Biologist @ NIH
- WHO IAEA training course
- M.D., residency pediatrics, fellowship in genetics
- Attending refresher courses and hands on training offered by scientific association
- CC course in anatomy
- Training in research institution while employed
- Wharton School certificate

- Job-specific training
- Medicine
- Informatics
- Fellowship
- Training in hospice field
- Research Fellow
- Subspecialty fellowship
- Technical writing/communication and software for web, multimedia, graphics, etc.
- Vendor-specific training workshops; AAPM summer schools
- Finishing 2nd post doc appointment
- Classes related to management/budgeting
- Numerous workshops for specific developments
- Mentoring undergraduate students in the lab
- Courses in grammar and writing
- Work related training
- Patent training
- Professional symposia and meetings relevant to my area
- Safety in personnel management
- Clinical pharmacology
- Marketing management training
- M.D. degree
- Several short training workshops
- Attending refresher courses and hands on training offered by scientific association
- M.D., residency pediatrics, fellowship in genetics

14. Indicate all degrees earned after graduating from GSBS. Other (SPECIFY)

- B.S. – 2 responses
- M.D./Ph.D. program
- My Ph.D. from GSBS was combined with an M.D.
- M.B.A. – 9 responses
- M.P.H – 5 responses
- MSPH – 2 responses
- State of TX licensure - Medical Physics
- Specialist certification in physical therapy, OCS = Orthopedic Certified Specialist
- M.A. (Teaching English to speakers of other languages); currently in progress; expected May 2009
- Paralegal certificate USPTO registration (Patent Attorney)
- M.S. – 9 responses
- Another M.S.
- M.D. – 2 responses
- M.D. degree
- M.D. in 2010
- Board certification, M.D. licensure, Lab Director licenses
- R.A.L. (Certification by professional society)
- M.S. Computer Science
- M.S. Genetic Counseling

- DABT - Certification in Toxicology, Diplomat of the American Board of Toxicology
- Computer certificate
- Professional Certificate
- In progress of a Ph.D.
- Private practice
- Pre GSBS M.D.
- MPAS (Masters in Physician Assistant Studies)
- A.A.S.
- Manager
- M.S.W.
- M.O.M.
- D.O. You really should include D.O. (Doctor of Osteopathic Medicine as equivalent to M.D. degree, e.g. M.D./D.O. as a choice
- Prosthodontics
- Residency completion in Oral & Maxillofacial Surgery
- AAS
- Doctor of Science, University of Tokyo, Japan in 1994
- Physician Assistant
- Post doc
- Current in Ph.D. program
- None – 26 responses
- None; received PhD from GSBS
- None GSBS = Ph.D.
- None earned after GSBS
- NA – 4 responses

15. When you *first entered* GSBS, what were your primary and secondary career goals? Other (SPECIFY)

- I was not sure of my career goals when I first entered GSBS.
- Clinical service in Diagnostic Radiology or Radiation Therapy/Cancer Treatment
- Work in a clinical setting
- Further education
- Government Science Policy/Research
- Government lab work
- Government
- Both (a) and (b) were primary goals; didn't know which one I wanted to do.
- M.D., Ph.D. (50 – 50)
- Science Policy
- Genetic Counselor – 4 responses
- Genetic Counseling – 2 responses
- Clinical Genetic Counselor – 2 responses
- Become Genetic Counselor
- Obtain job as a Genetic Counselor – 2 responses
- Genetic counseling position
- Clinically relevant experience and training

Table D.1
GSBS Alumni Survey
Comments by Question

- Dentistry
- Clinical/Translational research and teaching at an academic institution
- Clinical Genetics
- Clinical Medicine – 2 responses
- Gain employment
- Patent Law
- Medical
- Medicine
- Go to medical school
- Medical school
- Clinical – 2 responses
- Scientific editorial team in journals
- Wanted to get a J.D. and do science and law (plan was health law)
- Training for medical service
- Clinical Medical Physics – 2 respondents
- Clinical Medical Physics (Radiation Therapy)
- Clinical Medical Physicist
- Clinical Medical Physics practice
- Clinical application of physics
- Clinical Physicist
- Continue working
- Private clinic work
- Clinical position
- Clinical research
- Residency
- Core Facility Manager
- Analytical Services
- Clinical care
- Clinical setting
- Patient treatment
- Physician scientist
- Performing arts
- Seeking employment for a non-teaching position
- Possibly Patent Law
- More training (M.D.)
- Did not know
- Clinical and clinical related research
- Hospital Physicist
- Clinical duties at hospital
- Requirement for fellowship
- Clinical care
- Didn't know what I wanted to do
- Clinical work
- Medical research
- Resident Education in Oral & Maxillofacial Surgery

- Clinical practice
- Employment in healthcare, non-research
- Requirement for fellowship
- Secondary education
- Patient care
- Health care
- Academic administration
- Clinical work in medicine
- Commercialization activities
- Physician
- Provide clinic work

16. At *this time*, what are your primary and secondary career goals? Other (SPECIFY)

- Continuing medical education, scientific writing
- Business management
- Business
- Business/consulting
- Clinical service in Radiation Therapy
- Public Health
- Government Toxicologist
- Retired – 6 responses
- I am retired. – 2 responses
- Retired professor
- Retired ([Unknown] Sales, Product Management)
- Retired from U of H in 1994
- Retire in ~ 5 years
- Retirement in < 1 yr.
- To retire
- I am about to retire.
- Administration genetic counseling
- Clinical & teaching (@ graduate level)
- Clinical practice – 3 responses
- Possible get DSc in P.T. or Ph.D. in related field
- Research Public Health Lab
- I am already in my career goal -- biotech.
- D.D.S.
- Dentistry
- I'm a dermatologist.
- Clinical Medical Physicist
- Science Policy
- Teaching English as a second (or foreign) language
- Clinical duties and clinical training
- Something non-science related
- Surgery – 2 responses
- Genetic Counseling

Table D.1
GSBS Alumni Survey
Comments by Question

- Medical Genetics/Clinical Research
- Continue work as a genetic counselor
- Clinical Genetic Counselor
- Clinical Genetics
- Genetic Counselor – 3 responses
- Genetic counseling, teaching med. students, residents, residents, fellows & masters program genetic counseling students
- Continue my career in genetic counseling development
- Medical science liaison in pharma
- Practice clinically as a Medical Physicist
- Same as above
- Practicing medicine in Pediatrics
- Medical practice in lab medicine
- Clinical Medicine – 2 responses
- Medical practice – 2 responses
- Medical
- Getting my children through college
- Do my job well
- Regulatory Affairs Consultant
- Non-profit healthcare lab
- Full-time Mom
- Scientific editorial team in journals
- Medical writing
- Medical/scientific writing
- Medical writing/editing
- Writing/consulting
- Science writing
- Medical and scientific publications
- Academic med., teaching and research
- To become president
- Sales and Marketing/Product Management in industry
- Communications Professional
- Academic clinical, research and teaching
- Intellectual Property law
- Active patent attorney. When I retire from UT system OGC, I want to teach science and math.
- Translation of research to market; Intellectual Property
- Advance legal career – 2 responses
- I am a patent litigator.
- Patent Law
- Patent lawyer
- Law
- In-House Counsel
- Biotech Patent Law as an agent
- Attorney – 2 responses
- Improving legal skills

Table D.1
GSBS Alumni Survey
Comments by Question

- Scientific Licensing (Industry)
- Clinical Trial/Clinical Research Consultant/Liaison
- Temporary – Stay at home Mom
- Medical service
- Manager and Discipline Lead in Toxicology for petroleum and chemical company
- Clinical Medical Physics
- High school science teacher
- Marketing
- Medical school teaching - 2 and clinical practice – 1
- Clinical Laboratory
- Non-profit medicine science education group
- Medicine – 3 responses
- Private clinic, hospital work
- Teaching in Biosafety
- I am now a practicing dentist and do some consulting in dental materials and occasional lectures in dental materials.
- Government
- Clinical lab – service position
- Full time wife and Mom, science consultant at local elementary school
- I retired from VAMC after 32 years (10/07) working as a physician.
- Patient care, clinical trial secondary
- Residency
- Patient relations, clinical research
- To gain my DABT to become a certified Toxicologist
- Private practice medicine
- Nursing school
- Full time private practice, teaching on volunteer basis
- Photography in connection with (through) any or all types of microscopy (better after 60 years of age because eyes lose ability to accommodate to off-focus images)
- Clinical Medical Physics
- Stay at home Mother – 20 years
- Biotech/Biomedical Sales and Marketing
- Practice medicine
- Government Service
- Patient Care
- Private medical practice
- In-house counsel in an academic medical center
- Same as above (seeking employment for a non-teaching position)
- Accounting and administration
- Non-biomedical related
- Private practice – Psychotherapy
- Curriculum Development
- Science education policy
- MOM
- Staff Pathologist

Table D.1
GSBS Alumni Survey
Comments by Question

- Not working
- Clinician
- Clinic related area
- Clinical Care
- Clinical
- Clinical and clinical related research
- Practice medicine
- Clinical Research
- Clinical practice
- Patient Care
- Clinical duties
- Clinical Medicine
- Critical Care
- Clinical position
- Clinical work
- Medical Research
- Medical Communications
- Clinical Physicist
- Government biology research (USDA, NIH, DOE, DOD)
- Pursue Physician Assistant program
- Clinical Medical Physics
- Clinical Medical Physics practice
- Fiction writer
- Academic physician
- Directing an in vitro fertilization lab for a medical clinic
- Employment in healthcare, non-research
- Life science investments
- Science and public policy research
- IT professional
- Consulting management in medicine
- Academic administration
- Physician scientist
- M.D.
- Physician
- Practicing physician
- Quality in healthcare
- Setting up a science training in a secondary education setting
- Patent Manager at UTHSC-Houston
- Clinical application of physics
- Health Care field
- Private practice
- Clinical work and teaching
- Business opportunities (particularly health and wellness, medical and life science)
- I teach a university extension course periodically.
- Current non-science employment

- Clinical Medical Physics/Research
- Director of T-STEM Center, Director of Educ. Outreach
- Finish residency
- [Unknown]
- Still not sure
- Undecided
- Secondary not sure

20. Indicate your current employment FIELD. Other (SPECIFY)

- Graduate student – 2 respondents
- Sales/Marketing
- Sales
- Marketing
- University Education & Research
- Retired
- Retired teacher
- Legal – 6 responses
- Law
- Patent Law – private practice
- Patent Law
- In-house counsel
- Patent Lawyer
- Attorney
- Practicing attorney
- Senior Attorney in Office of General Counsel at UT system
- Patent Manager at UTHSC-Houston
- Science Policy
- President of a company that performs diagnostic testing.
- Drug development (Oncology)
- Academic research and teaching
- Pharmaceutical industry
- Information Technology
- Clinical Pharmacology
- Industry
- Research/Lab Management
- Consulting in environmental health and safety
- Consultant – self-employed
- Consultant – Pharmaceutical industry (I'm retired.)
- Medical Affairs/Consultation (Industry)
- Consultant (Respiratory Toxicologist)
- Health care consulting
- Medical writer
- Medical writing/editing, surgery publications manager
- Writing/consulting
- Medical writing/publications

Table D.1
GSBS Alumni Survey
Comments by Question

- Industry (Pharmaceutical) /Scientific Licensing
- Study Director
- Communications Professional
- Regulatory Risk Assessment
- Research Support
- HCLD Clinical Laboratory Director
- Oil company management
- Government – Field Response
- Federal Government
- Government Program Officer NIA
- Military Health Care
- Small business
- Residency
- Public Health
- Ph.D. program at another school (M.S. from GSBS)
- Research
- Clinical dentistry
- Graduate Research Assistant
- Clinical Medicine
- Casino games dealer
- Tech service/warehouse management/some purchasing
- Professor of Biochemistry in a medical school
- Biotech Marketing/Project Management
- Environmental Chemistry
- Genetic Counseling
- Medical Communications
- Clinical research – 2 respondents
- Medical physics in cancer therapy
- Resident
- Toxicologist at NASA
- Federal Government (Regulatory)
- Portfolio Development/ Search and Evaluation (Oncology)
- Primary Practice (OB/Gyn)
- Medical Strategy/Medical Education Consulting
- Assistant Professor
- Health Care and Translational Research
- Non-tenure track Assistant Professor at a RU/H Carnegie classified university (starting July 2009)
- Garden design
- Research intensive academic appointment with teaching
- Public Policy Research
- IT professional
- Industrial Development
- Quality Engineering
- Research support
- Faculty physician, Clinical Research tenure track

- Health and Human Services
- Quality Assurance & Regulatory Affairs

21. Indicate your current employer TYPE. Other (SPECIFY)

- Clinical Research Program Manager
- Community college or technical institute and research intensive university, including professional schools
- Retired from #8
- Retired
- Non-government science + technology policy institution
- HMO
- Co-founder of consulting firm
- Academic teaching hospital
- Private practice group
- Private practice law
- Law firm – 3 responses
- Legal – 2 responses
- Private practice law
- Surgeon/Private practice
- Community blood center - clinical and research areas
- Casino corporation
- M. D. Anderson Cancer Center – 2 responses
- Small DME company
- State university hospital
- Academic/university
- Agency
- NASA contractor
- Both government and health care facility
- Research institute with joint appointment to graduate school similar to GSBS
- Private equity firm
- Academic hospital
- Non-profit foundation
- Cancer Center (health care facility and research institute)
- Also teach a university extension course
- Both government and health care facility
- Residency

Table D.1
GSBS Alumni Survey
Comments by Question

23. What is your current job title? Other (SPECIFY)

- Project Manager/ Regulatory Management Clinical Trials
- Executive Vice President
- Medical writer – 2 responses
- Medical Writer – Oncology
- Chief Medical Physicist
- Attorney – head of a one-person firm
- Associate Attorney
- Attorney – 2 responses
- Patent Attorney
- Patent Agent
- Senior Attorney
- Application Scientist
- Sr. Director
- Genetic Counselor – 5 responses
- Genetic Counselor/Faculty, Instructor
- Clinical – 2 responses
- Physical Therapist – self-employed contract
- DVM
- Former title Professor & Dean
- Senior Manager, Translational Research (Product Development)
- M.D. – 2 responses
- Medical Doctor – 2 responses
- Physician – 3 respondents
- Staff Physician – 2 respondents
- Staff Physician, Clinical Instructor
- Oral and Maxillofacial Surgeon
- Chief Medical Officer
- Resident Physician
- Staff Pathologist
- Surgeon
- Properties Officer
- Garden designer
- Program Manager
- President – 4 responses
- President (self-employed)
- President and CEO
- Vice President – 2 responses
- VP of Legal Affairs and Corp. Secretary
- Vice President, Research
- Associate Vice-President
- Associate R&D Manager, Biochemistry
- Sales Representative
- Sales

Table D.1
GSBS Alumni Survey
Comments by Question

- Periodontist
- Dentist – 2 respondents
- General Dentist
- Professional Staff
- Consulting Engineer
- Consultant
- Combination of 3 & 4
- Partner, Medical Group
- Principal Toxicologist and Vice President of Scientific Affairs
- Partner
- Contract Manager
- Grant Program Manager
- Writer
- Senior Medical Writer
- Sr. Director
- Study Director
- Communications Professional
- Research Lab Coordinator
- Senior Therapeutic Specialist
- Compliance Research Analyst
- Genetic Counselor
- Staff – Genetic Counselor – 2 responses
- Genetic Counselor, Clinic Manager
- Global Manager and Discipline Lead
- Toxicologist
- Chief, Radiation Program Operations
- Associate – 2 responses
- Chemistry teacher
- Project Coordinator
- Portfolio Manager – Research
- Physiologist
- Medical Physicist – 4 responses
- Senior Medical Physicist
- Chief Medical Physicist
- Clinical Physicist
- Graduate Research Assistant – 2 responses
- Biosafety Specialist
- Team Leader
- Surgery Publications Program Manager (Neurosurgery)
- Craps dealer
- Research Assistant
- Senior Research Officer
- Senior Scientist Toxicology and Mechanistic Biology
- Retired as Associate Professor (Faculty)
- Solo practitioner

Table D.1
GSBS Alumni Survey
Comments by Question

- Tech service
- Program Product Manager
- Solo practitioner (Neurology)
- Senior Counselor
- Program Official
- Chemistry teacher
- Compliance attorney
- Senior Scientific Director
- Project Director
- Senior Auditor
- Litigation Technology Analyst/Attorney
- Manager/Director Quality Assurance
- CSO/CEO
- Research Assistant II
- Biosafety Officer
- Senior Director, Search and Evaluation, Oncology
- Senior Manager
- Clinical Data Manager
- Associate Medical Director
- Clinical Medical Physicist
- Radiological Physicist
- Scientific Communication Manager
- Clinical Staff Physicist
- Scientific Director
- Physicist
- Surgery
- Medical Science Liaison
- Principal – private equity firm
- Associate Professor, Associate Director
- Fellow (equivalent to associate professor)
- Clinical Scientist
- Senior Scientist
- Regulatory Expert
- Director, Industry Partnerships
- Managing Partner in a Medical Service Partnership
- Scientific Review Officer/Health Science Administrator
- Sr. Quality Engineer
- Patent Manager at UTHSC-Houston
- Ph.D. graduate student
- Biosafety Specialist
- Product Marketing Manager
- Scientific Communications Associate
- Research Manager
- Investigator
- Sr. Director of Quality Assurance; I also teach part-time at a local university.

- Manager
- Health Scientist Administrator

35. Indicate in which of the following formalized Programs you received your diploma from GSBS. Other (SPECIFY)

- Program in Genetics not called Genes and Development
- Biophysics/Experimental Radiotherapy
- Biomedical Sciences – 6 responses
- Biomedical Sciences (at the time and on the diploma)
- These did not exist 1968-1973. Was called Biomedical Sciences.
- Biomedical Sciences – Physiology
- Biomedical Sciences (Immunology, Microbiology) Ph.D. (Biochemistry) M.S.
- Degree was M.S. in Biomedical Sciences. My thesis was in Virology; my Ph.D. work was breast cancer research but I did not write my dissertation; went to med school instead.
- Ph.D. program in Radiological Physics
- M.D./Ph.D. program – 2 respondents
- M.D./Ph.D. – 3 responses
- Ph.D. in Biochemistry
- Dental Sciences
- Above mentioned programs not formalized in 1974; Ph.D. in Tumor Immunology/Cell Cycle Kinetics
- Physiology (UT Med School, Houston)
- Physiology – 2 responses
- Program in Immunology
- Cell Biology and Cytogenetics
- Genetics
- Biophysics – 2 responses
- M.S. Biophysics
- Cell Biology – 2 responses
- Environmental and Molecular Carcinogenesis
- Environmental Molecular Carcinogenesis
- Demography and Population Genetics (currently Human Genetics)
- Biomedical Engineering
- Oral Pathology
- Biological Sciences with specialization in Immunology (note first award of this specialization category)
- Human platelets
- Biochemical Genetics/Molecular Genetics
- Biology Department Environmental Biology
- M.S. in Nuclear Medicine
- Nuclear Medicine
- Concentration in Physiology at UTDB
- M.S. of Biophysics
- Oral Physiology and Immunology
- Molecular and Cancer Biology

- Cancer Biology and Molecular Biology
- GSBS degree, concentration on Neuroscience
- Environmental and Molecular Carcinogenesis to Smithville
- Nutrition
- Emphasis on Immunology -- no "program" was available
- Radiation Biology
- Molecular Biology
- Physiology and Cell Biology
- Broad Biomedical Science with Immunology emphasis
- Neural Sciences – The program in Neuroscience wasn't created until around 1979.
- Specialized M.S. in Med. Phys. and Ph.D. in Med. Phys
- Biochemistry & Molecular Biology, emphasis Reproductive Biology
- Patient Based Biologic Research
- Tumor Virology (Department of Cell Biology at that time)
- Program in Anatomy
- Toxicology program was within Pharmacology Department
- Don't think such programs existed then
- Not sure/ don't remember
- Can't really recall; sorry
- I'm not really sure what the program name was.
- No program in diploma

40. If you are a U.S. citizen or permanent resident of the U.S., what is your ethnicity? Other (SPECIFY)

- Caucasian + Asian
- Mostly Caucasian and slight American Indian
- East/Anglo-Indian
- India
- Persian
- Indian sub-continental
- Pakistani-American

Table D.2
GSBS Alumni Survey
General Comments

Satisfied Comments

- I think you are doing well. I had no complaints as a grad student, and enjoyed my interactions with student colleagues and faculty.
- GSBS was an exceptional experience for me, primarily because of the support system. Not only did I receive encouragement from colleagues within the lab, but I also received help from students in other labs, my committee members, and especially individuals within the dean's office. Dean Stancel and others were integral in my development during my time at GSBS and since leaving to conduct research at the NIH, and they provided me with confidence to explore relevant research questions within my field in an unprecedented manner. My training at GSBS has more than adequately prepared me to become a successful biomedical researcher.
- It is interesting to see my change in responses since the last time I participated. My life trajectory has been somewhat tumultuous and not what I had planned for myself. It is now that I am getting back into the swing of things. When I graduated, I had to turn down a (dream) job at the medical school at the University of California-San Diego because my wife had just been accepted to professional school. Although I was lucky to receive the job offer and prepared (due to my training) to take the job, I made a heartbreaking decision. I declined the offer and instead took a job outside of my GSBS field of training or even science. Since that time, I have rejoined the scientific workforce at the University of California-Davis. I am forever grateful to Drs. Varsha Gandhi and William Plunkett for their continued support. I have been fortunate to meet Dr. Pete Anderson and complete along with Dr. E. Kleinerman, a 2-year clinical trial. Without the training that I received at UTMDACC, this would not have been possible.
- Coming to GSBS was quite an unforgettable and enriching experience. I thoroughly enjoyed some of the classes and would recommend the school to others. It was encouraging to receive mentoring and support from several faculty (committee professors and Dr. Wiener) when my own PI was adverse to provide it. I do not understand why my professor chose not to help me become a better student though I tried to give him my best work ethic. At M. D. Anderson, students know there is great potential and resources to achieve the skills to go into any related field of applied science. Unfortunately, I was experiencing a tense and negative learning environment with my PI and was not able to realize my path while I was there. I would have like to have contributed to the scientific literature while at MDACC, but not being allowed this opportunity perhaps it will be elsewhere. Thank you.
- My time at GSBS was very enjoyable and rewarding.
- Overall I rate my experience at GSBS as excellent. I developed self-confidence in research and talking to peers in general. The social events organized by GSBS were especially important in bringing different people to a common format and sharing ideas. I am proud to be a GSBS alumnus.
- While at GSBS I felt we were spending a lot of time in courses being broadly trained, which was unlike the specialization approach of other schools. Had I followed the traditional - academic path - this may have been true, however as it turned out, it is this breadth that has best served me in my non-linear career path. It is very important for us to be able to acquire new knowledge rapidly and to integrate past and present knowledge. "One never knows do one" - Fats Waller "Difficult to see. Always in motion is the future" - Yoda
- Many of the past weaknesses in training related to writing have been better formalized and addressed since my formative training years at GSBS.
- Certainly continue with the annual alumni dinner events.
- One of the best parts of my experience at GSBS was the relationship I developed with my advisor, BR Brinkley. For over 38 years he has shown continued interest in my career and has continued to be a mentor. This type of personal relationship developed at GSBS is a very important part of the program. TC Hsu also comes to mind in this regard.

Table D.2
GSBS Alumni Survey
General Comments

- Although my current work does not use much of the knowledge I acquired through GSBS, GSBS has provided excellent training program to prepare the capability and skill sets that benefits a lot to my career so far.
- My career choice since graduate school would be considered untraditional, but I never regret obtaining my PhD and the opportunities that this advanced degree in science has allowed me. I know that GSBS has been actively trying to expose students to alternative career paths, such as mine, and I would encourage them to continue in the future.
- My experience as a GSBS student was amazing. Being part of the outreach program really made a difference for me and gave the opportunity to make a difference for other students. The support that I received from the GSBS staff throughout and after my graduate studies is something that I still brag about. Certainly going through graduate school is one of the toughest things that I have gone through, but the level of training that I received has made a difference in my professional development. I am very grateful for the opportunity to be part of GSBS.
- I have recommended GSBS to all of my former students or employees who were considering graduate school. What I remember from my first interview with GSBS was that the attitude was "Let's talk about what we (the faculty and I) can do together for the next few years", not the "Why don't you tell us about what you can do for us" attitude I experienced at other schools. Throughout my years at GSBS, that attitude continued- it extremely pro-student, and teaches not only coursework, but cooperation and collaboration throughout a student's education. I thank goodness I made the right choice for graduate school!
- Fantastic place, fantastic people. Drs. Dowhan, Davies, Strobel, Darlington; Brenda Gaughan and others. Keep prioritizing making close personal connections with the students. I have never worked harder and at the same time was very happy. This laid a very healthy groundwork for me afterwards. My graduate training made the medical training tolerable.
- The specialized M.S. in Medical Physics is a terrific program and extremely well respected. It was the best career decision I ever made!
- The Career Day program is a great idea. Encourage more contact between current students and alumni.
- I [unknown] for research opportunities. At GSBS an unlimited [unknown] the greatest attraction of the school.
- After graduation from GSBS and 2 years postdoctoral training, I worked for a medical products/pharmaceutical company, Abbott Laboratories for 17 years, retiring in 1999. I have since turned my attention to language translation and, more recently, teaching English as a second language. My experience at GSBS and in later positions can all be said to have contributed positively to the work I am doing now.
- Although I am not currently doing research, I do teach at both local medical schools and my experience at and after GSBS have helped me considerably in being an effective faculty member.
- I learned how to prepare talks and give them. This has helped me in all my subsequent work. I appreciate any knowledge of the scientific method and the medical terminology that I learned. I do not regret the time I spent at GSBS, even though my M.S. has not been worth much to me in my life career. The fact that I accomplished this level of education and wrote basically a Ph.D. thesis was enough to give me confidence in many subsequent areas of endeavor. Thanks.
- Loved my GSBS experience. Enjoy staying in contact with fellow alumni and professors. Senior Attorney at UT system – OGC
- GSBS should continue with its interdisciplinary approach outlined in its core curriculum that all students must take. I have found the background obtained from these courses to be very helpful. In fact, during my career, I have worked in each of the areas represented by my selected core courses--with very short get-up-to speed times. Through the years since graduation, I have found many universities have added the interdisciplinary approach to their graduate curriculum and even added the descriptive phrase "Graduate

Table D.2
GSBS Alumni Survey
General Comments

School of Biomedical Sciences!" GSBS was and is doing things ahead of the times and is in the forefront of graduate biomedical education.

- After being a postdoctoral fellow and faculty participating in graduate student education for the last 14 years, I have come to realize that the students at the GSBS are of higher quality than the vast majority of those at the other peer institutions in which I have worked.
- While I feel my education and training at GSBS/MDA prepared me for my current position, I feel that it was the graduate students who helped get me through grad school. I received the most practical training from my peers.
- Resources scientific teaching at GSBS prepared me very well for the challenges of both research and administration. I am very proud of my GSBS Ph.D. and the career I have built based on that foundation.
- Overall my experiences at UT were excellent even despite my early departure. I have recommended the program in MMG to several students and continue to benefit from the training I gained.
- My program was a unique, one-time course of study. My answers don't relate to normal GSBS students or programs. It did put me at (or near) the top of my field and was responsible for the national and international development of this field.
- My education and experience at GSBS was a great turning point in my life.
- I think it's great that GSBS offers so many seminars on different career opportunities available outside of academia. I am also very pleased with the continued communication GSBS has with its alumni.
- The best part of GSBS was my graduate advisor, Dr. A. Clark Griffin and my graduate committee, their counsel and their friendship.
- Now interface regularly with colleagues from Ivy League institutions as well as prominent West Coast institutions and international research institutions in both EU and APAC. GSBS did an excellent job prepping me for my career. My education, pre- and post-doctoral experience has served me very, very well over the course of 35+ years.
- Although no longer in a field directly related to GSBS ... not true. I'm still doing what I learned there. It's just not the molecular biology I studied. I highly value the experience there and hope it's even getting better.
- Annual Alumni Recognition and Dinner is very much appreciated. Dean's State of GSBS is not only useful but cleverly and well delivered by Dr. Stancel. How is it that GSBS was able to restore Brenda to the young girl that was at GSBS when we were students and convince her to work for GSBS again? Great job.
- Appreciated ability to do lab rotations.
- I am grateful for my training at GSBS. I excelled in Medical School because of my GSBS preparation.
- Keep up the great work! P.S. Create a Facebook and LinkedIn page for GSBS.
- Before the formalized program infrastructure for GSBS was put in place, it was a most interesting time to experience (suffer?) the GSBS. Things changed every year. Additional requirements extended the timeline to graduation. It is wonderful to see that the early evolution of the GSBS led to the formalized infrastructure existent today. It is wonderful to see the focus on high quality training in science not only surviving, but flourishing.
- I enjoyed the relaxed, open atmosphere and easily accessible faculty. It made learning easy. Access to cutting-edge research was especially inspiring. I went on to do research at MDACC until 2007 when I switched to an administrative position. My main focus now is training others how to set up research projects and obtain funding for them. My experience at GSBS gave me the means to do my research and my current job.
- Y'all do a great job!! Keep it up.
- The M.S. program in Genetic Counseling is one of the best in the nation. Our graduates are strong leaders in the National Society of Genetic Counselors and our graduates are very favorably viewed by the profession. The thesis requirement is crucial to the program, as many GC programs lack this and it is clear that their

Table D.2
GSBS Alumni Survey
General Comments

graduates do not have the same grasp of research and critical review of journal articles that our graduates have. I feel so lucky to have had my graduate education @ the GSBS. Thank you!!

- I had an unusual GSBS experience in that I was my advisor's first student and he left prior to me completing my program. I am also somewhat unusual in that I have left the field. I am now a scientific writer and editor. The one thing that was great about GSBS was all the courses I could take for "free" at Baylor College of Medicine. They offered many courses relevant to my specialty that I thought were a great opportunity [unknown] you make available to your students.
- As one of the first GSBS Ph.D. graduates, I look very positively on my experiences and training. It prepared me very well on the research side and helped somewhat administrationally as I became the Deputy Director of the Extramural Program of a NIH Institute and Senior Scientific Advisor to the Center Director of the FDA.
- The GSBS should continue the programs they currently have as they are beneficial to the pro-active students that want to take advantage of them.
- Thanks for a great job and for caring about your graduates!
- I am very proud of being a GSBS graduate and I feel that I am very well equipped to succeed in a research career because of the high quality of education I received.
- I thank GSBS for my career today!
- I enjoy receiving news and updates through the mail.
- As a foreign student, I felt a timely and kind help from GSBS very important. As my own experience, I had a difficult situation with my first supervisor. Both Dr. Darlington and Brenda at GSBS patiently listened to my situation and offered their support.
- I think the individual attention given to me at GSBS was very valuable. Every faculty member I was privileged to work with truly wanted to teach me the skills I needed to master.
- I really want to thank GSBS for the opportunity of being a student here. I received a great education that formed the cornerstone of my career. I am forever grateful.
- I loved my time there. It was a friendly atmosphere yet still highly advanced in the science and curriculum. A wonderful place to grow into a scientist with full encouragement from the staff and professors.
- Overall I rate my experience at GSBS as excellent. I developed self-confidence in research and talking to peers in general. The social events organized by GSBS were especially important in bringing different people to a common format and sharing ideas. I am proud to be a GSBS alumnus.
- My experience was great. Wonderful faculty, great advisor, good friends, and a great administration. Keep up the good job!!!
- My only regret in my career is the inability to obtain significant amounts of grant funding to develop a vibrant research program at a 4 year college. I have had the opportunity to work for a variety of health care institutions and NASA as a contractor for 10 years. None of that would have been possible without my degrees from GSBS.
- Thank you.
- The training at GSBS sustained me in my research and teaching goals.
- Thank you for the great years!
- My experience at GSBS is a bit outdated. I know a great deal of improvements have been made but I do appreciate the continued emphasis on the diversity and quality of education GSBS is continuing to provide. I also understand it is an extremely competitive world. If I had the energy and resources, I would very much like to support the mission of GSBS. It has made a big difference in my life and I hope it will continue to do the same for many more under privileged and needy.
- Special thanks go to Dr. Wiener for his guide and encouragement! GSBS is like a family for me.

Table D.2
GSBS Alumni Survey
General Comments

- I had an extremely positive experience as a GSBS student. I am proud to be an alumnus of the GSBS. I think Dr. Stancel does an excellent job at keeping in touch with alumni and keeping us informed of activities at the GSBS.
- GSBS trained me to mature in my thinking process and I also pushed my limit. Even though I am not doing direct basic research, the knowledge and training at GSBS helped me greatly on my current clinical research. I appreciate that I have a Ph.D. degree and I am grateful that I have had good training.
- I had a good experience at the GSBS, but decided during my time there to pursue a different career. While I do not do anything basic science related, I do feel that I learned how to be a better student and thinker, which has helped me in my current educational pursuits.
- It is a wonderful experience in GSBS.
- All literature from GSBS is welcomed and read completely.
- It was a very valuable experience and superb education. Keep it up.
- I have been retired for a number of years, so most of survey does not apply to me. However, attaining a Ph.D. at GSBS was an important step for me and I value it for giving me the opportunity to do the research I did later.
- GSBS was a wonderful place for graduate education, unlimited opportunities. I am forever grateful to GSBS!
- The UT-GCP is a wonderful program with exceptional faculty!
- Just wanted to say that I am very proud of GSBS for what it has done over the years. GSBS alumni have contributed significantly to medical field. I am very glad that I had decided to get my education at GSBS.
- GSBS gave me very good flexibility to take courses at UT Medical Branch Galveston to finish my M.S. after marrying med student. GSBS gave me encouragement, openness, respect, help given to me by my advisor. He more than gave me credit for the work I did. GSBS training gave me background I needed to work on my own on research projects at Shriner's Burn Institute, Galveston, including co-author of a paper and therefore helped me see that I did not want to do only research. But research has been my fallback before medical school and between med school and pathology residency. Therefore GSBS did a good job, especially advisor!
- It was a great education. Life has me on a different path these days but for 18 years, GSBS was central to my career. The success that I had was due to the education I received at GSBS plus a lot of hard work on my part!
- The GSBS faculty and staff were all fantastic! Warm, caring competent and help. Thanks for everything!
- My training and experience at GSBS was exceptional. Keep up the good work. I highly recommend GSBS to my undergraduate students.
- I feel that my Ph.D. advisor was very effective in providing me with the skills needed to survive in a competitive environment. Also, the GSBS staff during my enrollment in GSBS, was very helpful with students individual needs.
- GSBS has the tremendous advantage of being part of a large diverse medical center. Students can gain exposure to virtually any area of biomedical research or life sciences. That broad exposure is an advantage for students who pursue unusual career paths. I personally followed such a path that led me to become a Director at IBM and a co-founder of a multibillion dollar life sciences business. I later wrote a book on bioinformatics and became the CEO of a software company that developed parallel computing software for drug discovery. I've recently focused my attention on the investment world where I've used my background in bioinformatics to develop algorithms and software for derivatives trading. That work has resulted in several book contracts with a major publisher. So I've found ways to apply my college and graduate education in areas that I never would have imagined when I was young. GSBS should encourage their students to think non-traditionally because you never know where your education can take you.

Table D.2
GSBS Alumni Survey
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- Having faculty from other institutions (Baylor) on my advisory and supervisory committees was critical to my dissertation. There is no reason for a student to not receive their Ph.D. within 6 years; more oversight from GSBS would be helpful. My training in GSBS (and interactions) were very instrumental in my research career and [unknown] my new exposure to industry. Thank you!
- Although I initially did clinical research after medical school, I eventually stopped research and now do only private practice. Many of my answers about the importance of GSBS would be different if I had continued in my original path. However, my research and publications helped me obtain a dermatology residency ranked in the top two residencies in the U.S., so I feel it contributed directly to my success.
- The research training, particularly the lab-based research is world class. Self-sponsored PI's will continue to provide a high-powered environment that will train students to be creative in the lab. It does not teach the students how to be self-sustaining.
- GSBS was my first choice. I loved [unknown] lab. Keep a focus on lab skills and innovation. I have been supported by my scientific and technical skills since 1972. I still have a tenure senior level federal research scientist position. In this economy, any scientist who has a research job is a success!
- I think that GSBS is a great place, with many opportunities in practically any area of biomedical research. I have great memories of the time that I spent in Houston at M. D. Anderson. Hope to see it grow in quality!
- The overall education that I received through the GSBS was excellent and the GSBS office was very pleasant to work with.
- Very nice and knowledgeable instructors and research professors. Students here being trained in a comfortable environment.

Dissatisfied Comments

- My advisor was a total disaster and did everything possible to keep me from graduating. Quote from him, "she hasn't suffered enough yet" to finish--he said this many times publicly. He is a very critical man of everyone but himself and no one else is good enough for a Ph.D. degree other than himself. This man is still there at M. D. Anderson today. After some years in GSBS, he tried to get me removed from the graduate school (even though I had published manuscripts) but was unable to do so due to a faculty committee who reviewed the case and said he was wrong. The Dean of the Graduate School at that time then allowed my advisor to cut off my stipend as punishment. I had to work without any financial support to complete my dissertation under extreme duress. My advisor put every possible obstacle in my way to keep me from completing my degree. You cannot possibly imagine the torment from this maladjusted person. He was not successful in keeping me from completing my degree. He gave everyone who worked for him a stress related disease--to my knowledge he still does this even today. I learned what not to do from this man--nothing else. I feel sorry for him as he will live and die unhappy. I have succeeded in spite of him and GSBS.
- M.S. students are completely ignored in the GSBS world. There was no initial communication as to the fact that most PIs won't take M.S. only students. There are no written rules or guidelines as far as the necessary components needed to complete an M.S. degree. I found the only difference between my M.S. and the Ph.D. was the depth of dissertation research. Most importantly, if a PI is not interested in one on one teaching/training than they should not be allowed to have students. PIs should be trained themselves on the difference between a student and a tech. There is too much politics and egos in GSBS which didn't allow PIs to be honest with their students. On a good note... the department of Human & Molecular Genetics as a whole was wonderful. They are all charismatic and our weekly seminars were the only true education I received at GSBS.
- This is supposed to be an anonymous survey, yet you ask questions that could be used to easily identify the responder! Sex, age, ethnicity, program, year of graduation, etc. I agree to respond only to help GSBS as gratitude to all the faculty there who helped me. The company you hired to gather information is very

annoying!! They keep on calling me, e-mailing, mailing, etc. This is so bothersome! Please stop it! Find another way to contact your alumni.

- Hard to think of myself as "GSBS" trained. My training came through my department and other departments at the medical school. GSBS was an entity that sent me letters when I hadn't had a committee meeting and kept records. The input GSBS has had in my career has been minimal at best.
- My only complaint about GSBS is that when I was a student then, my major professor had too much control over my career options. I completed my M.S. and was married a few weeks later. When I called her to ask what journal would be best to submit my research paper for publication (this was <6 months after my graduation), she said, "Don't bother. I've already submitted it." She only listed me as an investigator and she was principle or first author. I've always felt this was morally wrong and helped me switch from clinical research to medicine where I felt I was treated more fairly and the working environment was more collegial and less "cut throat".
- I wish I had had more mentoring about how to blend a LIFE into a Biomed career. I was married at the time and pregnant when I graduated. I made time for my family but was looked down upon because of it. I didn't want to be a LAB RAT, chained to a bench yet that was the behavior that was encouraged and rewarded. I wish we had been encouraged to be a whole healthy person instead of a singularly focused slave! I fought that image - got out with a M.S. and fell from grace in my advisor's eyes. She took me off a fellowship I had earned. I now teach at a community college and adore it! I wish I had known about that option earlier. I learned about it from a fellow student. Prior to my first semester teaching, I had **ZERO** experience teaching science. I hope by now y'all have fixed some of these issues. It has been 14 years since my graduation.

Advisors/Mentors/PIs and Professors

- Advice for future students: Research your advisor very well before you commit your entire career to him/her. I cannot emphasize enough how important this is. It can make you or break you!
- My thesis advisor was an excellent teacher/mentor. My thesis committee and other professors in the department were very supportive and knowledgeable. It was a wonderful experience in my life. I hope to continue research when my kids are older.
- I felt completely prepared to enter my post-doc training. My advisor was very involved in my career development and encouraged me to always go above and beyond. HOWEVER, not all students are so lucky. Often advisors are not held to the same standards. Many students must essentially advise themselves, face conflict with their mentors, and graduation can also be held up. The GSBS has placed many requirements on the students which helps move graduation along quickly, but nothing can be done about an advisor that does not follow these rules. Perhaps some 'probation' can be placed on advisors that have consistent conflict/lack of interest with students, much like the probation that is placed on students. Best of luck and thank you for all you do!!!
- Institute ethics rules for professors.
- The quality of education at GSBS is highly dependent on its faculty. During my time as a Master's student, and later on as a Ph.D. student (which I didn't finish), I found that the right mentor and teacher will give you the encouragement you need, while the wrong one will deflate your aspirations. Scientists in general are not known for their social skills, and to my knowledge, most faculty never took one single course in education. I think it would highly benefit the faculty to take some kind of education courses. It seems quite logical that a teacher should know, not just their field of specialty, but how to teach as well.
- Maybe one-third of my professors were useless. The literature gave me what I needed. You could hopefully create a system to occasionally check progress towards the Ph.D. goal. Review every semester – the worth of each teacher's classes. Allow a professor to take students ONLY after being approved by his peers; a Ph.D. from one generally considered a crackpot is NOT useful. The only GOOD thing I got out of GSBS was the habit of objective, logical and rational thought – made law school relatively easy.

Table D.2
GSBS Alumni Survey
General Comments

- So much of the education is mentor specific.
- I owe a lot of my training "highs" to my mentor as opposed to programmatic strengths at the time I was there. He was exceptional.
- My experience at GSBS was excellent. I had wonderful teachers and my thesis advisor was spectacular. I still aspire to being the kind of researcher he is. My main recommendation that GSBS develop specific mentoring programs to help women and minority candidates achieve top level positions. Perhaps you have this now. It was not in place when I was there.
- Even though I had a good mentor, I saw many other of my fellow students suffer greatly in their research due to the lack of a good mentor. To address this, I think mandatory faculty development in the area of lab management and mentorship is greatly needed. Students can benefit from this too, though it would have to be separate from the faculty development, of course. Secondly, I found the disparity in quality of research projects to be astounding. It seems some committees would rather push through a poor performing student with a very poorly executed research project to get rid of him/her than tell the student that a Ph.D. or M.S. from GSBS is not in their future. Several of my GSBS friends can think of at least 1 student in their lab who fits this description. Lastly, European style dissertations should be embraced by GSBS and all its programs. To write the standard version dissertation is an incredible waste of effort and time.
- It would be great if GSBS can also provide essential training for junior faculties about how to be a good mentor for graduate students.
- I would strongly recommend a student-alumni message board that allows/encourages feedback or recommendations from alumni that students can use in choosing their prospective mentor and rotation labs.
- There should be some legal and/or external assistance via GSBS to aid students during conflicts with mentors or committee members. There do not seem to be many protective measures for students that run through difficulties.
- GSBS needs more structure for first year students undergoing rotations and selecting their labs. Also, mentors NEED training! My PI did not know half the things that were expected of her and the fact that graduate students are not research assistants but budding independent scientists. I strongly suggest that all PIs be required to take a course in graduate students (only has to be half a day). The lack of organization at GSBS has left me with lukewarm feelings towards GSBS. Otherwise, this was a great school, especially connected to M. D. Anderson.
- Provide for more career counseling starting at the beginning of a student's time at GSBS, e.g. mentor-mentee program.
- GSBS at the time did not help a lot with fellowship opportunities but did help with networking which is how I got post-doc position. Learned most of stuff for current job in post-doc fellowship which is how it should be. GSBS should provide a broad education and teaching opportunities for CV and aid in obtaining fellowship or job opportunities. So I think it did an excellent job for broad education but lacked in teaching mentorship and in aiding for post-doc opportunities.
- There needs to be a formal definition of what a mentor should be to do for a student. Many people (including Dean) thought my advisor was great, but the in-lab experience I had was far from great. Other students in the lab agreed that our "mentor" did very little to help each student. Our mentor once admitted to a hands-off sink or swim philosophy. I don't see much mentoring in that! It would be nice to have some help for those who choose a non-traditional path after graduation. Many of us felt, and still feel lost, trying to find other options. Maybe tapping the experience of past GSBS alums who chose different fields to present how + why they ended up in their current jobs would help future students.
- GSBS should require all mentors to support the student to attend a national wide level conference at least once a year.
- I feel the GSBS provided an exceptionally diverse and friendly environment to allow the students to explore

their interests and expand their horizons. The freedom and diversity of the courses was a wonderful advantage. It would, however, be nice if the graduate school could watch over the PIs to ensure that they are offering the students the appropriate learning experiences. For example, my particular PI was very adamant about not attending seminars as they were a "waste of time," and not allowing us to go to conferences because someone might steal our project. I was discouraged from being an active member of the GSBS or the Cancer Biology Program because I had to be in the laboratory at all times, although I really did want to be an active member. I believe there is some effort to offer mentoring training and advice, but I know my PI was just checking his e-mail during these sessions when he really needed to learn about the topic.

- My PI was not helpful at all in finding my post-doc position. I was on my own. I also don't think I had enough encouragement to think creatively. I followed a protocol. I got two first author papers out of it which was great, but as a result I struggled a bit when I started my post-doc position.

Career Options

- GSBS should provide more resources and education to students who are interested in pursuing a career outside of academic.
- I am sure things have evolved at GSBS since my graduation [unknown] when I was there (1981-1986). The focus was exclusively on academic research. I had no idea of the career options in the industrial world. What I found is that I really don't like basic research, but really blossomed with process development and production. Perhaps GSBS could identify some industrial "partners" who would allow grad students to do semesters in industrial R & D?
- I enjoyed my time @ GSBS. Career opportunities in non-traditional areas need more consideration.
- While at GSBS, there was a very negative opinion regarding "alternative careers." Fortunately, Dean Stancel has taken important steps to get rid of that attitude and embrace the many career choices available to the students. Most of the people I know from grad school have pursued "alternative careers" and are extremely happy with that choice.
- Careers in health and safety in the chemical and petroleum industry are satisfying. But as your survey indicates, they are absent from your career options. Urge you to acquaint students with these options by course work, seminars, contact with alumni. All my valuable training was during my post-doc. I hired a GSBS graduate 3 months ago with training in toxicology; find his toxicology background poor. But being bright I am training him. Find you do not honor or recognize alumni accomplishments in industry - only in research and academia.
- I think the GSBS does a great job of exposing students to alternate career paths. However, I don't believe the faculty is as prepared to deal with students transitioning away from academic research roles. There are a large number of life science Ph.D.s out there and they aren't all going to follow in their advisors footsteps. Maybe some information can be provided to faculty on various career paths to better support their students.
- Ph.D. in 2008 is simply a calling card. Students should recognize that it is highly unlikely that they will continue in anything like their diss. research and be prepared to drive on using their education. Do something innovative: initiate a program with U of H such that Ph.D.s can become formally qualified to teach high school. Apparently there is need for science teachers at 2 level; this could be a fallback option for many with respect to finding "permanent" employment within 10 years of grad. Recommend that grads be made aware of clinical service options through post grad training and board certification.* These are very viable options but they are esoteric. See enclosed article and inset "CLIA-Approved Certification Boards". *Invite me down for a talk!
- I would make internships outside of academia mandatory so that students see what other options they have in a realistic setting. I would keep library access available to alumni as they do for the School of Public Health and UT Austin alumnus.
- There is one issue which I believe, if addressed, could help a lot of graduate students in planning for after

graduation. Many students enter GSBS believing they will stay in research, and throughout the Ph.D. process many change their goals and ideas for what a career in research entails. I have talked to many of my peers who are desperately searching for other options to pursue post-degree that do not involve the traditional paths (post-doc, industry research, teaching). There is a stigma on students planning to leave the research portion of science and it makes searching for that alternate career difficult. There have been some advances in introduction to Patent Law, but I believe acceptance and even promotion of these alternate careers along with even greater exposure to the diverse employment opportunities would really be beneficial. I took a post doc position due to timing issues and it is not in my final career plans to remain in the research side of science. I am still searching for a career that will better foster my talents and personal fulfillment.

- There was no information given to students about career paths in government for biomedical scientists. Everything was focused on becoming a grant-writing PI. We have many paths in the government for careers. FDA, CDC and many other agencies employ microbiologists, epidemiologists, chemists, etc. I currently hold a position that has tenure after 3 years of employment and my salary is equivalent to a full professor at most universities.
- Offer greater course selection and espouse students to take a diverse number of non-program oriented courses. Courses were always perceived as a chore and having pursued a non-academic career path, more courses would have added to the "breadth" and diversity of my scientific acumen. PLEASE PLEASE PLEASE teach GSBS students about career options outside of academic science; Patent Law, medical writing, medical strategy and medical affairs positions are rife and NO ONE taught us of these possibilities while in school. Contact me if interested in further discussing.
- Alternative pathways for using a Ph.D. would provide many students, disillusioned by a competitive research career, a reason to complete their degrees and put them to use as a benefit to science and provide gainful employment in an area where there is a significant need. GSBS did not provide an avenue for learning the skill set associated with teaching. This is a serious oversight and reduces the marketability of its graduates.
- I have been active in mentoring undergraduate students in the central Arkansas area, to encourage them to seek careers in biomedical science, and particularly in medical physics. I would like to see more active GSBS recruitment of students from this area, particularly at the University of Arkansas at Little Rock (UALR), and at the University of Central Arkansas in Conway (UCA).
- More job opportunities for research -- I'm not sure how to accomplish, but it would be nice to have more demand for the students that graduate.
- For students who choose to work in industry: GSBS can provide guidance related to competitive salary and contract negotiations and key risks to be weary of with new vs. established companies.
- When I was a student, I wished there was more career counseling. Use alumni network.

Grant Writing

- Students and faculty alike need training in how to write grant applications as well as the nuances of grantsmanship. I would offer to provide such a course of GSBS were interested.
- Have a mandatory class that teaches grant writing (including the more technical aspects such as animal protocol, preparing a budget, etc.), manuscript preparation (with tricks on how to make the manuscript more appetizing to reviewers), and preparing posters/talks that are well organized and will interest the audience (whether it's a laymen or specialized audience). Make qualifiers/dissertations more standardized, such as having a GSBS review board in addition to the committee for recommending whether a student can enter the Ph.D. program or graduate. Also have this board monitor committee meetings to make sure that students are getting proper mentorship on their projects.

Table D.2
GSBS Alumni Survey
General Comments

- Continue the good work! If there is one suggestion I may make is to provide a formal class on writing grants that get funded. It is not just enough to have a good idea that the grant proposes to investigate as I found out in my position as an assistant professor. By the time I discovered that it was too late. I have seen my ideas that were perfectly good being taken up by others including those on the NIH review committee. Those other factors needed are politics, where to submit the grant etc. People who are already funded at GSBS need to give some idea to the naive students. In my case I was lucky that the highly exciting and interesting clinical field of in vitro fertilization saved me and took me along a path that provides enough money for research in my field.
- Students could use a lot more "real life" science experience. Competitive grant writing and hypothesis development are good examples of areas to emphasize. This should be done without consideration of advisor's ability to pay for student. Formalized teaching and oral presentation skills also need significant help/practice. Regular and evaluated student talks about their research are crucial.
- GSBS lacks only one large aspect of graduate education (Ph.D. level) when compared to other graduate schools. Grant writing teaching/instruction is severely lacking in my opinion. Grant writing is the one that I feel Ph.D. students should get better training in (i.e., grant writing course).
- Students need more education regarding grant and paper writing; perhaps a required course after the candidacy exam? It would also be helpful to have lectures on "Women in Science".
- I would strongly encourage you to develop and implement: (1) a course in effective grantsmanship – especially how to play the NIH grants game; (2)a course in effective scientific and/or medical writing because this is a must have job skill for success; and (3) a course or seminar on consideration of alternative career paths as a defense against losing your job due to failure to get or keep a grant, or due to layoffs/restructuring of your company if you work in the biopharma industry. I have been through both of these scenarios and I think that from a career survival standpoint, all students should be aware and plan for these worst case scenarios -- not everyone will succeed at getting and keeping NIH grant support. In the long run, GSBS would be doing its current and future students a tremendous favor in better preparing them for the realities of career after graduation.

Programs/Courses/ Research

- Many graduates of GSBS like most graduate programs are extremely well defined in everything except teaching. Unfortunately, teaching is what many of us end up doing for a career.
- The students would greatly benefit from a formal seminar course where once a year they present a seminar to the complete GSBS members of the faculty and students. The students should be provided a chance to teach throughout the course of their training.
- Would like to see clinical research. I would be interested in this since I am a Physical Therapist. Thank you.
- It would be helpful to have a course early in the curriculum that teaches how to write research paper, grants, etc.
- I received incredible training during my time at the GSBS but the skills I use in the biotech industry on a daily basis were learned after my time in school. Although my bench training was incredible and my mentor was the single most valuable influence in my life, the courses were often very average. I realize that teaching in GSBS courses is a volunteer effort but it would be nice to see the programs actively work to improve the curriculum and keep it as current as possible.
- More attention to students in accomplishing their work at the end of their project - such as dissertation writing and discussion - by your mentor and committee, should be achieved before graduation. I felt that the attention and advice I received at the time I was submitting my dissertation should have been received long before the submission. That way, the project can have a better finishing, more polished and scientifically more complete. I had everything I expected from GSBS, but the timing has to be tightly scheduled closely

with committees, so that your science will have enough time to mature. I really do appreciate everything I learned from GSBS. Thank you.

- I feel that Cancer Biology Program needs better management/leadership and should have more emphasis on genetics/epigenetics of cancer. Also some mentors of it (particularly in Smith Building) do not have good projects.
- GSBS students should have a mandatory internship at a company or hospital of their choice for a short period of time to gain additional experience that makes them stand out compared to the average graduate student at other schools. A specific GSBS program in Experimental Therapeutics or Targeted Therapy should be developed for students interested in drug development or interest in industry employment.
- Specialized program for Ph.D. degree in Medical Physics with appropriate specialties. Two year Medical Physics Residency programs to prepare both M.S. and Ph.D. graduates for certification by the American Board of Radiology and work in medical radiology, radiation oncology and nuclear medicine clinics.
- More focus on the industrial/applied science/development/manufacturing for biotech and pharmaceutical professionals.
- I encourage more attention to the M.S. students within GSBS. For example, the ethics course required by all GSBS students is too heavy on research ethics, which isn't applicable to genetic counseling students. Allow them to take a different ethics course, perhaps at Rice.
- Running/managing a laboratory is, in many respects, a "small" business. In addition to mandating the ethics course for all GSBS students, GSBS administration should consider similarly mandating an intro business/management course. A course such as the latter will come in handy for students when they enter the real world... particularly for those students seeking non-traditional careers in science (or outside science), yet would even be very helpful/informative for students transitioning to a post-doc within the world of academic science.
- Teach and encourage using IT (information technology) to students, which it is proved that IT is rapidly an essential tool for all forms of scientific research.
- Enhance career related education and training and information!
- GSBS is fantastic. Just wish we as grad students were mandated to take some bioinformatics program classes since with sequencing/arrays being the modicum of everyday life this skill would become more and more essential in having an effective scientific career.
- Cancer is a disease arising from systemic condition. Current courses of Cancer Biology Program emphasize more at molecular and cellular level. I'll suggest to increase the following: pathology, mouse models and human cancers; evolution of cancer in molecular, cellular and systemic levels; system biology of cancer; developmental biology and cancer. The communication between individual research fields and labs needs to be organized and promoted among different institutes in GSBS (MDACC, Medical School, IBT, etc.)
- More career training/development seminars, i.e. CV prep, job talk prep, presentations, etc.
- I feel Ph.D. students should be required to have at least one first author research paper (not a review) before graduation. This would force advisors to give students viable projects and insure publication of their work. Formal training in writing research papers, grants and project development should be offered. A techniques class should be offered.
- I'm sure GSBS has modified teaching and research practices since I graduated. Hence, many of my ratings are not likely to apply in 2009. Nevertheless, significance of requested criteria for an effective GSBS program still applies. Much of the effective tools to assist in preparing graduate students can be further developed by GSBS faculty and staff (vs. too much attention by faculty per obtaining papers w/funding!). Hope this helps!
- As a student and now as a research professional with ~25 years of academic and 10 years of industrial experience, I am still not convinced that broad-based core curriculum is the best focus for preparing students for their careers. If a core curriculum is used, it should be combined with strong specialized courses taught

by experienced research professors. Many times a core curriculum is an excuse for spreading out the teaching load avoiding teaching altogether. I find most young people under 30 are poor thinkers and poor problem solvers.

- My best training was from my post-doc years and early academic job. I am now in industry and need to do project management. No matter what career, you need to teach how to turn research into papers by choosing research projects in a way that you always have data results to publish what you need to write a grant and how to navigate NIH and all other sources; how to do budgets and FTEs; how to be an effective hiring manager; how to be an effective manager; how to write effectively! In other words - the REAL world.
- I think steps should be taken to expedite the entry to graduation with Ph.D. timeframe, particularly for M.D./Ph.D. students. This may be able to be addressed through seminars for all incoming GSBS students, with yearly required repeat attendance, that address strategies for rapid, effective progress on research/publication.
- Providing leadership and business training would be good for running a lab. Teaching team work would help remove/reduce silos.
- Have different pharma companies come and do talks. Not enough pharma industry knowledge given. Offer business related courses also.
- Should improve to standardize the candidacy exam and training for professional scientific skill. (I graduated with 3 first author papers, while my classmates have no experience in writing a paper.) Students' activities should include more scholastic one not just the social entertainment one.
- Standardize the quantity of work (roughly) expected for a Ph.D. or an M.S. to be fair. Give students vacation time like employees. I took heat for taking a 5 day honeymoon, my first time off in 2 years.
- My experience in GSBS gave me a mathematically rigorous foundation that I find lacking in almost all graduate students today. To the extent that it is possible, GSBS should evaluate its "core" training and ask whether those standards have been maintained. I know that our Neuroscience Program at Utah, strong though it may be, is deficient here also.
- I wish I would have had a pharmacokinetics course at GSBS. I've advised students interested in industry to take a PK course for understanding the concepts. I have taken these courses during my post doc since I didn't have them at GSBS.
- Take a leadership position in building course work re: biotech/pharma drug development decision gates (all aspects/deep dives). (Concept → ind. → clinical trials → approval → market launch) Successful Rx vs. early to late stage attention based on tox/safety, pharmacology (DMPK), regulatory, IP, etc. In highly competitive industry environment facing added pressure of outcomes-based pay for performance drugs.
- Mandatory (core coursework) class(es) on Intellectual Property rights and optional for Patent Law. I would be a lot better off if I had known more about IP rights and law. I have found that being associated with the Texas Medical Center and M. D. Anderson Hospital generates instant credibility and recognition. Thank you!
- I suggest to add one very important course that teaches "Laboratory Techniques". Some students are not lucky to find enough help at the lab to teach them the very basic techniques such as western, southern, etc. I had this course in another state university called Oklahoma State University (OSU) and they had this excellent course that teaches about 16 laboratory techniques and enables the students to understand each technique theoretically and experimentally (4 credit hours). I wish I had it again in GSBS for reminder and refreshment. I suggest also, that even the M.S. student have rotations like Ph.D. students so they can pick up good labs where there is proper research and supervision. Thanks.
- Would have liked better quality/more rigorous course work. Fantastic support from Genes and Development faculty and staff. Would have liked an organized Cancer Cell. Good immigration support for international students, good housing. Need support/encouragement for incoming students in applying for external fellowships.

Table D.2
GSBS Alumni Survey
General Comments

- I would encourage the Toxicology program to not focus entirely on mechanisms.
- Continue alumni programs.

Other Comments

- Due to few grant funds and very tight constraints on hiring faculty, I left the research community after ~3 1/2 years post-doc/res. assoc. Been in industry ever since.
- I appreciate the training I received at the GSBS and know that it has 100% influenced the direction and success of my career. I think it would be helpful to create some sort of mechanism that links alumni and current faculty. Has anyone considered creating a group on Facebook?
- It may be worthwhile to have alumni promote GSBS at undergraduate events and job fairs at select Universities around the country. I would be willing to man a booth to recruit top students to GSBS.
- I believe GSBS could enhance communication w/alumni particularly alumni those who reside locally (in the Houston area). My experience at GSBS was a very positive one and consequently would like to maintain strong ties with GSBS.
- Provide more teaching opportunities for those interested. Highly encourage publishing in a peer reviewed journal before graduation.
- Please teach graduate student how to think critically, because there are so many papers that could mislead us.
- Students should be held more accountable for their progress (or lack thereof) so that they don't waste their own time, their advisor's time, and the school's money (like I did!).
- If I could have afforded it, I probably would have stayed. I just accumulated too much debt in a short amount of time. I felt there was lack of effort to find funding for masters students. I also felt as a master student that I wish I could have had a chance to rotate and found a better fit lab and program. Another reason I may have stayed to finish the Ph.D.
- Be helpful to students in a bad lab situation.
- You might consider whether we are still working in a science field, retired, or are otherwise engaged. Due to medical issues, I left active work early in my employment.
- It was a good education - both in courses and research training. However due to circumstances, partly of my own making, I got an M.S. instead of Ph.D. as I originally wanted. Faculty not real helpful on this. I did get a Ph.D. a few years later at another institution.
- My experience in the GSBS was very poor. It was not the fault of the GSBS so I try to look past it. I really liked how easy it was to visit with administrator of the GSBS. However, it would have been much nicer if Dr. Stancel had more free time to interact with students. Perhaps the GSBS could put on a lunch once a month and students can sign up to have lunch with Dr. Stancel - similar to having lunch with a guest speaker.
- I rarely see our institution(s) in high profile publications (as author affiliations). I would like to see GSBS have some "star" researchers to raise its standing in the scientific community.
- I attended GSBS with the sole intention of working with a specific member of the faculty. Many of the answers above reflect the fact that this faculty member's research fell outside the mainstream of the strengths of the GSBS. As such, many of the programs at the GSBS failed to provide me with training and background that related specifically to my goals. That said, I believe there are obvious strengths to the program at GSBS, and students attending whose career goals and areas of interest are addressed by these strong programs may have a different view of their years at GSBS.
- I have worked at institutions within the TMC for 17 years, but not UT affiliated. I have wondered how to

stay connected to UT GSBS for graduate education. As a professor and chair of departments in the TMC, I can help connect graduate students and post-docs to clinician scientists. Is there a way to be a part of the faculty and help contribute?

- I did not grasp that who you know is more important than what you know.
- My ratings are almost 30 years old, but hopefully still helpful.
- Some answers may not be correctly referred to my understanding. Current advanced technologies were not available during my studies at GSBS!
- I was a participant in an experimental program to determine if Life Sciences could be taught to engineering graduates. There were three of us that proved it couldn't be done. But after 1.3 years we salvaged an M.S. degree from GSBS and became some of the first "Biomedical Engineers" in the world. We developed the first digital patient monitors and my thesis described the first automatic indirect blood pressure instrument with digital displays. This is an historic part of GSBS activities that has not been documented. Supervising professors: (1) Fred B. Vogt, M.D., (2) Louis Meharg, Ph.D.
- I do not see the relevance of a responder such as me who graduated in 1980! Also, I hold a D.D.S. degree and was in a special hybrid program tailored to dentists.
- Sorry for the lateness. My years at GSBS were in the early 80's when you essentially handed the student a tutorial book and sent them into the Medical Center to find a position. In the 87-88 interval I returned and got my Ph.D. You were just putting student support in place. So a lot of GSBS environment does not apply to me because the only GSBS activity was the Friday beer bust so I did not and do not have a sense of GSBS community.
- When tropical storm Allison hit, I was a Research Associate in Richard Clark's lab at UT Med School. My work was destroyed and N.I.H. funding did not cover it, so I resigned. Jobs in science were scarce during the Bush years but I did get involved in mold and fungus remediation until that career dissolved. Now I deal craps and blackjack in Las Vegas at least until the casinos go under.
- As I was training it was not clear to me how insecure research careers are, how fickle research topics can be, and how it is really more important who you know than what you know. Living grant to grant is hell and not based on merit. Science is too safe to fund truly original ideas.
- Continue to develop along the same lines as you have been doing. All the programs presently offered appear to be much better in both organization and content than what was there in the early seventies. After graduation I resigned from one position hoping to go to another one with Dr. Joe [unknown] that I thought I'd much prefer. But was told he couldn't see anymore at that time as he had been given duty of designing the new anatomy department (two story building prior to your present high rise building). Went to several other jobs in Houston, planning to work a year to help finish establishing Texas residency before further grad work. One thing led to another. I stayed further away; never got back around to re-applying at UTHSCH. (Louisiana placement agencies seem a little baffled re: what is biomedical sciences but management recruiters in Houston thought it sounded great for placing me at American Optical in microscope sales.) Returned to Louisiana reluctantly, only at great behest by Mom. Medical help with caring for Father who died of lung cancer in 1984. Then Mother needed much more help in late 1990's. She died at 96 years of age in 2003. The last (underemployed) job through its several reincarnations was valuable (location wise) as it was only 2 1/2 miles from the family home and was very flexible in allowing me to run home quickly if needed there. Pardon my scratchy longhand. I should have sat down at a desk instead of trying to write this on a clipboard in bed.
- It will be great to know where all my classmates are and how they are doing.
- I graduated in 1981 so my experience, e.g. curriculum, research, etc., must be very different than the current students.
- Most of the questions on this survey do not apply to genetic counseling graduates. You might consider a separate survey for our group and get input from the UTGCP for what should be on it.

Table D.2
GSBS Alumni Survey
General Comments

- Many of the questions refer to GSBS, but a lot of questions should have been directed to address the program you were in versus GSBS.
- I graduated in 1973 (M.S.) and failed to pass orals for Ph.D. (1974) and then left GSBS with no contact or desire therefore for 35 years. Thus I cannot give a meaningful response to questions 5, 6, and 7. I am retired and cannot therefore give meaningful responses to questions 16 and 25 through 27.
- For the survey, please note the following: (1) Question 9a does not allow for the joint selection of first author and co-author as a GSBS student. In my case, both applied but I only selected first author since I could no select both. (2) Question 30 asks about extramural funding. I think it would be interesting to ask a question(s) that captures how much funding for the alumni's career to-date ($ and how many grants at PI). (3) It was funny to see that the cover letter described this survey as "anonymous" but then there were very detailed demographic questions (i.e., birth date, program, year graduated, gender, current location of employment, etc.) that clearly makes it very easy to identify the individual. This didn't bother me, but it was definitely not anonymous. Thanks!
- You asked many questions about additional training SINCE you graduated from GSBS, but never gave a chance to state what training you received PRIOR to GSBS (for example, for me it was a DVM, M.S. and a residency), so the way you asked the question is likely to bias the outcomes you are asking for.
- My experience at GSBS was great overall. This survey was difficult to complete for two reasons. First, I was a genetic counseling student. Second, I am now a stay-at-home Mom. There were not many truly appropriate responses for either of these factors.
- Question 38 and 39 could not both be answered. There appears to be a bug in the survey.
- Online question 26 needs to be corrected - there are two related and no unrelated as in the written survey.
- It would have been even better to do this while in school.
- I'd like to have a blog and e-mail.
- No comment.
- None.
- NA

Appendix E
Summary of References and Bibliography

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