Appendix A: Trainee Survey

Appendix A
IGERT Trainee Survey

Note to reviewers

- Programming instructions are indicated in blue text.
- Text in green denotes the source for a particular survey question.
- This survey will be programmed for on-line administration. The formatting of items may appear differently on-line.

The Integrative Graduate Education Research and Traineeship (IGERT) Trainee Survey

Sponsored by the National Science Foundation
Conducted by Abt Associates Inc.

This survey is being conducted by Abt Associates Inc. for the National Science Foundation (NSF), to learn how the Integrative Graduate Education Research and Traineeship (IGERT) projects prepare students to work as interdisciplinary researchers.

You are receiving this survey because you have received/are receiving funding from NSF's IGERT program.

Confidentiality and Participation

Participation in the survey is voluntary and non participation will have no impact on you or your institution. You may skip questions on the survey or discontinue participation at any time. There is minimal risk of breach of confidentiality. Procedures are in place to minimize this risk. All information that would permit identification of an individual respondent will be held in strict confidence, will be used by persons engaged in and for the purpose of the survey, and will not be disclosed or released to others for any purpose except as required by law. You will not be identified by name, and information from the study will be reported only in the aggregate at the project level. Your answers will have no bearing on your current NSF funding or on future applications to NSF for funding/grants.

If you have questions about the study, please contact the study project director, Dr. Beth Gamse of Abt Associates Inc. at (617) 349-2808 or email her at Beth_Gamse@abtassoc.com.

Completing the Survey

Please use the survey's navigation buttons (<u>not</u> your browser buttons) to move through the questionnaire. You may exit the survey by closing your browser window and returning to the survey to finish at a later time; simply click the link below and you will return to the point where you left off.

We estimate that it will take approximately 30 minutes to complete the survey. If you need help accessing the survey or navigating the screens, you may send an email to <insert technical support email address >. Or, call us toll-free at <insert technical support telephone number > between 9:00 a.m. and 9:00 p.m. EDT, and ask to speak to someone about the IGERT study.

Consent

Please continue with the survey if you agree to participate in this study.

Click **here** to begin the survey.

SECTION A: YOUR CURRENT DEGREE PROGRAM

The first few questions are about your current status in your degree program.

A1   As of <insert reference date>, have you graduated from your doctoral degree program? *Check one response*

☐₁ Yes
☐₂ No

A2   Were you enrolled in your doctoral degree program during the 2010-2011 academic year? *Check one response*

☐₁ Yes
☐₂ No

[Programming note: If A2=No (2) then end survey and present with text: "Thank you. This survey is intended for individuals who were enrolled during the 2010-11 academic year."]

SECTION B: CONDUCTING INTERDISCIPLINARY RESEARCH

The next set of questions asks about conducting interdisciplinary research as characterized by certain types of knowledge, skills and abilities and how important each one is to conducting research.

B1   To conduct interdisciplinary research, how important is it for someone to have *depth of knowledge in one discipline or field of study*?

Not at all important	Somewhat important	Important	Very important
☐ 0	☐ 1	☐ 2	☐ 3

B2   How important is it for someone to have the *ability to recognize the strengths and weaknesses of multiple disciplines* to conduct
- research in a single discipline or field of study?
- interdisciplinary research?

To conduct …	The ability to recognize the strengths and weaknesses of multiple disciplines			
	Not at all important	Somewhat important	Important	Very important
a. Research in a single discipline or field of study	☐ 0	☐ 1	☐ 2	☐ 3
b. Interdisciplinary research	☐ 0	☐ 1	☐ 2	☐ 3

B3   How important is it for someone to have the *ability to apply the approaches and tools from multiple disciplines to address a research question* to conduct
- research in a single discipline or field of study?
- interdisciplinary research?

To conduct …	The ability to apply the approaches and tools from multiple disciplines to address a research question			
	Not at all important	Somewhat important	Important	Very important
a. Research in a single discipline or field of study	☐ 0	☐ 1	☐ 2	☐ 3
b. Interdisciplinary research	☐ 0	☐ 1	☐ 2	☐ 3

B4 How important is it for someone to have the *ability to work in a team with individuals trained in different disciplines* to conduct
- research in a single discipline or field of study?
- interdisciplinary research?

To conduct …	The ability to work in a team with individuals trained in different disciplines			
	Not at all important	Somewhat important	Important	Very important
a. Research in a single discipline or field of study	$\square_0$	$\square_1$	$\square_2$	$\square_3$
b. Interdisciplinary research	$\square_0$	$\square_1$	$\square_2$	$\square_3$

B5 How important is it for someone to have the *ability to communicate research based in one discipline or field of study to academic researchers trained in different disciplines* to conduct
- research in a single discipline or field of study?
- interdisciplinary research?

To conduct …	The ability to communicate research based in one discipline or field of study to academic researchers trained in different disciplines			
	Not at all important	Somewhat important	Important	Very important
a. Research in a single discipline or field of study	$\square_0$	$\square_1$	$\square_2$	$\square_3$
b. Interdisciplinary research	$\square_0$	$\square_1$	$\square_2$	$\square_3$

B6 How important is it for someone to have the *ability to communicate about interdisciplinary research to non-academic audiences (laypersons)* to conduct
- research in a single discipline or field of study?
- interdisciplinary research?

To conduct …	The ability to communicate about interdisciplinary research to non-academic audiences (laypersons)			
	Not at all important	Somewhat important	Important	Very important
a. Research in a single discipline or field of study	$\square_0$	$\square_1$	$\square_2$	$\square_3$
b. Interdisciplinary research	$\square_0$	$\square_1$	$\square_2$	$\square_3$

B7   In addition to the types of knowledge, skills and abilities that you have identified as important in the previous questions, what other knowledge, skills, or abilities are important for conducting interdisciplinary research?

If none, please check here: ❑ NONE

[Textbox, 1,000 characters]

B8   As of <insert reference date>, how confident are you about your knowledge, skills or abilities in the following areas? *Check one response per row*

	Not at all confident	Somewhat confident	Confident	Very Confident
a. Depth of knowledge in one discipline or field of study	$\square_0$	$\square_1$	$\square_2$	$\square_3$
b. Ability to recognize the strengths and weaknesses of multiple disciplines	$\square_0$	$\square_1$	$\square_2$	$\square_3$
c. Ability to apply the approaches and tools from multiple disciplines to address a research question	$\square_0$	$\square_1$	$\square_2$	$\square_3$
d. Ability to work in a team with individuals trained in different disciplines	$\square_0$	$\square_1$	$\square_2$	$\square_3$
e. Ability to communicate research based in one discipline or field of study to **academic researchers trained in different disciplines**	$\square_0$	$\square_1$	$\square_2$	$\square_3$
f. Ability to communicate about interdisciplinary research to **non-academic audiences (laypersons)**	$\square_0$	$\square_1$	$\square_2$	$\square_3$

SECTION C: YOUR IGERT TRAINING

The next set of questions focuses on your IGERT training and whether it has helped you to develop and/or enhance your knowledge, skills or abilities in different areas as well as your overall capacity to conduct interdisciplinary research.

C1 Have you participated in any of the following IGERT training activities? *Check one response per row*

IGERT activities	Yes	No
a. Courses/seminars in multiple disciplines	☐1	☐2
b. Interdisciplinary courses/seminars that covered topics related to your IGERT theme	☐1	☐2
c. Journal clubs or research brown bags	☐1	☐2
d. Hands-on laboratory and/or field experiences in disciplines related to your IGERT project	☐1	☐2
e. Internships in a non-academic setting (industry, business, government, etc.)	☐1	☐2
f. Interdisciplinary team research project	☐1	☐2
g. International research experiences	☐1	☐2
h. Mentorship from faculty from outside your home department	☐1	☐2
i. Outreach activities (K-12 students, the general public etc.)	☐1	☐2

C2 Overall, how helpful has your IGERT training been in developing the following knowledge, skills or abilities? *Check one response per row*

	Not at all helpful	Somewhat helpful	Helpful	Very helpful
a. Depth of knowledge in one discipline or field of study	☐0	☐1	☐2	☐3
b. Ability to recognize the strengths and weaknesses of multiple disciplines	☐0	☐1	☐2	☐3
c. Ability to apply the approaches and tools from multiple disciplines to address a research question	☐0	☐1	☐2	☐3
d. Ability to work in a team with individuals trained in different disciplines	☐0	☐1	☐2	☐3
e. Ability to communicate research based in one discipline or field of study to **academic researchers trained in different disciplines**	☐0	☐1	☐2	☐3
f. Ability to communicate about interdisciplinary research to **non-academic audiences (laypersons)**	☐0	☐1	☐2	☐3

C3   What other knowledge, skills or abilities has your IGERT training helped you develop?
     If none, please check here: ❑ NONE

[Textbox, 1,000 characters]

[Programming note: The next set of questions will be driven by how trainees respond to C2 – if trainees indicate that their overall IGERT training has been "helpful" or "very helpful" in developing them in the areas (C2b through C2f), they will receive a follow up question asking them to indicate how helpful specific IGERT activities have been in developing that respective area. For example, if the respondent indicates that their IGERT training was very helpful in developing their ability to recognize the strengths and weaknesses of multiple disciplines, they will receive a follow up question. Note: A follow-up question will not appear for C2a].

[Programming note: C4 will only appear if C2b=2 or 3. Present items where C1=1]

C4   Reflecting on your IGERT experience so far, how helpful have the following IGERT training activities been in terms of developing your *ability to recognize the strengths and weaknesses of multiple disciplines*? *Check one response per row*

IGERT activities [Items will only appear if C1=1]	Not at all helpful	Somewhat helpful	Helpful	Very helpful	Do not know
a. Courses/seminars in multiple disciplines	☐0	☐1	☐2	☐3	☐99
b. Interdisciplinary courses/seminars that covered topics related to your IGERT theme	☐0	☐1	☐2	☐3	☐99
c. Journal clubs or research brown bags	☐0	☐1	☐2	☐3	☐99
d. Hands-on laboratory and/or field experiences in disciplines related to your IGERT project	☐0	☐1	☐2	☐3	☐99
e. Internships in a non-academic setting (industry, business, government, etc.)	☐0	☐1	☐2	☐3	☐99
f. Interdisciplinary team research project	☐0	☐1	☐2	☐3	☐99
g. International research experiences	☐0	☐1	☐2	☐3	☐99
h. Mentorship from faculty from outside your home department	☐0	☐1	☐2	☐3	☐99
i. Outreach activities (K-12 students, the general public etc.)	☐0	☐1	☐2	☐3	☐99

C4a. Are there other IGERT training activities that have been helpful or very helpful in developing *your ability to recognize the strengths and weaknesses of multiple disciplines*? If so, please describe.

If none, please check here: ❑ NONE

[Textbox, 1,000 characters]

C5 Reflecting on your IGERT experience so far, how helpful have the following IGERT training activities been in terms of developing your *ability to apply the approaches and tools from multiple disciplines to address a research question*? *Check one response per row*

IGERT activities [Items will only appear if C1=1]	Not at all helpful	Somewhat helpful	Helpful	Very helpful	Do not know
a. Courses/seminars in multiple disciplines	☐ 0	☐ 1	☐ 2	☐ 3	☐ 99
b. Interdisciplinary courses/seminars that covered topics related to your IGERT theme	☐ 0	☐ 1	☐ 2	☐ 3	☐ 99
c. Journal clubs or research brown bags	☐ 0	☐ 1	☐ 2	☐ 3	☐ 99
d. Hands-on laboratory and/or field experiences in disciplines related to your IGERT project	☐ 0	☐ 1	☐ 2	☐ 3	☐ 99
e. Internships in a non-academic setting (industry, business, government, etc.)	☐ 0	☐ 1	☐ 2	☐ 3	☐ 99
f. Interdisciplinary team research project	☐ 0	☐ 1	☐ 2	☐ 3	☐ 99
g. International research experiences	☐ 0	☐ 1	☐ 2	☐ 3	☐ 99
h. Mentorship from faculty from outside your home department	☐ 0	☐ 1	☐ 2	☐ 3	☐ 99
i. Outreach activities (K-12 students, the general public etc.)	☐ 0	☐ 1	☐ 2	☐ 3	☐ 99

C5a. Are there other IGERT training activities that have been helpful or very helpful in developing your *ability to apply the approaches and tools from multiple disciplines to address a research question?* If so, please describe.

If none, please check here: ❑ NONE

[Textbox, 1,000 characters]

[Programming note: C6 will only appear if C2d=2 or 3. Present items where C1=1]

C6   Reflecting on your IGERT experience so far, how helpful have the following IGERT training activities been in terms of developing your *ability to work in a team with individuals trained in different disciplines*? *Check one response per row*

IGERT activities [Items will only appear if C1=1]	Not at all helpful	Somewhat helpful	Helpful	Very helpful	Do not know
a. Courses/seminars in multiple disciplines	☐0	☐1	☐2	☐3	☐99
b. Interdisciplinary courses/seminars that covered topics related to your IGERT theme	☐0	☐1	☐2	☐3	☐99
c. Journal clubs or research brown bags	☐0	☐1	☐2	☐3	☐99
d. Hands-on laboratory and/or field experiences in disciplines related to your IGERT project	☐0	☐1	☐2	☐3	☐99
e. Internships in a non-academic setting (industry, business, government, etc.)	☐0	☐1	☐2	☐3	☐99
f. Interdisciplinary team research project	☐0	☐1	☐2	☐3	☐99
g. International research experiences	☐0	☐1	☐2	☐3	☐99
h. Mentorship from faculty from outside your home department	☐0	☐1	☐2	☐3	☐99
i. Outreach activities (K-12 students, the general public etc.)	☐0	☐1	☐2	☐3	☐99

C6a. Are there other IGERT training activities that have been helpful or very helpful in developing your *ability to work in a team with individuals trained in different disciplines?* If so, please describe.

If none, please check here: ❑ NONE

[Textbox, 1,000 characters]

C7   Reflecting on your IGERT experience so far, how helpful have the following IGERT training activities been in terms of developing your *ability to communicate research based in one discipline or field of study to **academic researchers trained in different disciplines***? *Check one response per row*

IGERT activities [Items will only appear if C1=1]	Not at all helpful	Somewhat helpful	Helpful	Very helpful	Do not know
a. Courses/seminars in multiple disciplines	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
b. Interdisciplinary courses/seminars that covered topics related to your IGERT theme	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
c. Journal clubs or research brown bags	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
d. Hands-on laboratory and/or field experiences in disciplines related to your IGERT project	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
e. Internships in a non-academic setting (industry, business, government, etc.)	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
f. Interdisciplinary team research project	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
g. International research experiences	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
h. Mentorship from faculty from outside your home department	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
i. Outreach activities (K-12 students, the general public etc.)	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$

C7a. Are there other IGERT training activities that have been helpful or very helpful in developing your *ability to communicate research based in one discipline or field of study to **academic researchers trained in different disciplines***? If so, please describe.

If none, please check here: ❏ NONE

[Textbox, 1,000 characters]

[Programming note: C8 will only appear if C2f=2 or 3. Present items where C1=1]

C8 Reflecting on your IGERT experience so far, how helpful have the following IGERT training activities been in terms of developing your *ability to communicate about interdisciplinary research to **non-academic audiences (laypersons)***? *Check one response per row*

IGERT activities [Items will only appear if C1=1]	Not at all helpful	Somewhat helpful	Helpful	Very helpful	Do not know
a. Courses/seminars in multiple disciplines	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
b. Interdisciplinary courses/seminars that covered topics related to your IGERT theme	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
c. Journal clubs or research brown bags	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
d. Hands-on laboratory and/or field experiences in disciplines related to your IGERT project	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
e. Internships in a non-academic setting (industry, business, government, etc.)	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
f. Interdisciplinary team research project	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
g. International research experiences	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
h. Mentorship from faculty from outside your home department	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$
i. Outreach activities (K-12 students, the general public etc.)	$\square_0$	$\square_1$	$\square_2$	$\square_3$	$\square_{99}$

C8a. Are there other IGERT training activities that have been helpful or very helpful in developing your *ability to communicate about interdisciplinary research to **non-academic audiences (laypersons)***? If so, please describe.

If none, please check here: ❑ NONE

[Textbox, 1,000 characters]

C9 Have you experienced any of the following as a result of your IGERT training? *Check one response per row.*

		Not at all	Somewhat	A great deal
a.	Difficulty balancing demands of IGERT versus my degree program	☐1	☐2	☐3
b.	An increased work load	☐1	☐2	☐3
c.	Less opportunity than non-IGERT peers to interact with students and faculty in my primary discipline	☐1	☐2	☐3
d.	Less opportunity than non-IGERT peers to obtain graduate funding in my primary discipline (e.g., RA, TA, fellowship)	☐1	☐2	☐3
e.	Discouragement about my participation in IGERT from students or faculty in my primary discipline	☐1	☐2	☐3
f.	Frustration trying to communicate with students from other primary disciplines	☐1	☐2	☐3

C10 What has been the most difficult or challenging aspect of participating in your IGERT training program?

[Textbox, 1,000 characters]

SECTION D: Background Questions

The last few questions ask about the discipline(s) of your doctoral degree program and demographic characteristics.

D1   Please select the discipline(s) in which you will receive your doctoral degree.

First, indicate which of the three broader areas in which your discipline(s) falls. If your doctoral degree is best characterized as interdisciplinary, please select up to two broad areas, if applicable.

[Source: Adapted from the 2006 Survey of Doctoral Recipients]

Check up to two responses

☐₁ Sciences (e.g., Agricultural/food sciences; Biological sciences; Environmental life sciences; Computer and information sciences; Mathematics and statistics; Chemistry; Earth, atmospheric and ocean sciences; Physics; Psychology)

☐₂ Social Sciences (e.g., Economics; Political and related sciences; Sociology/Anthropology; Other Social Sciences)

☐₃ Engineering

[Programming note: If R selects one area from above, display one of three screens based on choice above
1.   Sciences screen
2.   Social Sciences screen
3.   Engineering screen
The next three tables should each be on a separate screen.
If R selects two broad areas; display two of the three screens based on choices above.]

Science Fields

To view other fields (Social Sciences or Engineering), please select <u>Go back to the 3 broad areas</u> to change your selection.

[Programming note: The blue underlined text above will function just like the "Go back to the 3 broad areas" button at the bottom of the page.]

Agricultural/food sciences	❍ Animal sciences	❍ Plant sciences
	❍ Food sciences/technology	❍ OTHER agricultural sciences
Biological sciences *Bioengineering, see ENGINEERING, next page*	❍ Biochemistry/biophysics ❍ Biology, general ❍ Botany ❍ Cell/molecular biology ❍ Ecology ❍ Genetics, animal/plant	❍ Microbiological sciences/immunology ❍ Nutritional sciences ❍ Pharmacology, human/animal ❍ Physiology and pathology, human/animal ❍ Zoology, general ❍ OTHER Biological sciences
Environmental life sciences	❍ Environmental science/studies	❍ Forestry sciences
Computer and information sciences *For Computer Engineering, see ENGINEERING, next page*	❍ Computer/information sciences, general ❍ Computer programming ❍ Computer science	❍ Computer systems analysis ❍ Information services/systems ❍ OTHER computer/information sciences
Mathematics and statistics	❍ Applied mathematics ❍ Mathematics, general ❍ Operations research	❍ Statistics ❍ OTHER mathematics
Chemistry, except biochemistry	❍ Chemistry except biochemistry (*biochemistry, see Biological sciences*)	
Earth, atmospheric, and ocean sciences	❍ Atmospheric sciences/meteorology ❍ Earth sciences ❍ Geology	❍ Geological sciences, other ❍ Oceanography ❍ OTHER physical sciences
Physics *Biophysics, see Biological Sciences*	❍ Astronomy/astrophysics	❍ Physics
Psychology	❍ Clinical psychology ❍ Counseling ❍ Educational psychology ❍ Experimental psychology	❍ General psychology ❍ Industrial/organizational psychology ❍ Social psychology ❍ OTHER psychology

Social Sciences

To view other fields (Sciences or Engineering), please select <u>Go back to the 3 broad areas</u> to change your selection.

[Programming note: The blue underlined text above will function just like the "Go back to the 3 broad areas" button at the bottom of the page.]

Economics	○ Agricultural economics	○ Economics
Political and related sciences	○ International relations ○ Political science/government	○ Public policy studies
Sociology/Anthropology	○ Anthropology/archaeology ○ Criminology	○ Sociology
OTHER social sciences	○ Area/ethnic studies ○ Education, general ○ Geography ○ History of science	○ Linguistics ○ Philosophy of science ○ OTHER social sciences

Engineering Fields

To view other fields (Sciences or Social Science), please select <u>Go back to the 3 broad areas</u> to change your selection.

Biochemical engineering, *see Bioengineering/biomedical under OTHER Engineering*		
Chemical engineering	○ Chemical engineering	
Civil/architectural eng.	○ Architectural engineering	○ Civil engineering
Electrical/computer engineering	○ Computer/systems engineering	○ Electrical/electronics/communications engineering
Industrial engineering	○ Industrial/manufacturing engineering	
Mechanical engineering	○ Mechanical engineering	
OTHER engineering	○ Aerospace/aeronautical/ astronautical engineering ○ Agricultural engineering ○ Bioengineering/biomedical engineering ○ Engineering, general ○ Engineering sciences/ mechanics/physics ○ Environmental engineering	○ Geophysical/geological engineering ○ Materials engineering, including ceramics/textiles ○ Metallurgical engineering ○ Mining/minerals engineering ○ Naval architecture/marine engineering ○ Nuclear engineering ○ Petroleum engineering ○ OTHER engineering

Providing data on gender, race and ethnicity is entirely voluntary, however, providing this information is helpful to this study. This information will be reported only in the aggregate.

D2 Are you……
[Source: Adapted from the 2006 Survey of Doctoral Recipients]

☐₁ Male
☐₂ Female

D3 Are you Hispanic or Latino?
[Source: Adapted from the 2006 Survey of Doctoral Recipients]

☐₁ Yes
☐₂ No

D4   What is your racial background? [Source: Adapted from the 2006 Survey of Doctoral Recipients]
       Check one or more.

       ☐₁ American Indian or Alaska Native
       ☐₂ Native Hawaiian or other Pacific Islander
       ☐₃ Asian
       ☐₄ Black or African-American
       ☐₅ White

SECTION E: RECOMMENDATIONS

E1 If you have any other comments—about this study, your IGERT experience, or suggestions to increase students' preparedness for interdisciplinary research—please note them below.

[Textbox, 1,000 characters]

On behalf of the National Science Foundation and the IGERT program, thank you for taking the time to complete this survey!

Click here to submit your responses: **SUBMIT**