Appendix C: Crosswalk of Survey/Interview Items to Study Outcomes

Appendix C: Crosswalk of Survey/Interview Items to Research Questions

We specify our analytic approach in advance so that the study may follow an a priori planned analysis instead of a post-hoc exploration of the data, thereby increasing the rigor of the study. Below we describe our approach to the analysis of the data collected using the sources described above. The table below summarizes, for each research question, specific topics of investigation (i.e., major constructs), the survey items that address each topic and the analysis that will be conducted.

Data sources: TS= Trainee survey (TS: #) ; PI= PI interview protocol (PI: #)			
Research Question	**Topic**	**Data Source**	**Analysis Variable**
RQ1: Whether and in what ways do IGERT participants (PIs and trainees) perceive the knowledge, skills or abilities drawn from the literature as important to conducting interdisciplinary research?	IGERT trainees' perception of the importance of the knowledge, skills or abilities to conducting ***interdisciplinary research*** IGERT trainees' perception of the importance of the knowledge, skills or abilities to conducting ***research in one discipline or field of study***	TS: B1, B2, B3, B4, B5, B6	Variables from this question would be coded as: 1=Not at all important 2=Somewhat important 3=Important 4=Very important The frequency and percentage selecting each response category for each of the areas will be reported.
	IGERT trainees' perception of other areas that are important to conducting interdisciplinary research	TS:B7	The data will be qualitatively coded to provide a list of other areas that trainees believe are important to conducting interdisciplinary research.
	IGERT PI's perception of the importance of the knowledge, skills or abilities to conducting interdisciplinary research	PI: 4A, 5A, 6A,7A, 8A, 9A, 10	Variables from this question would be coded as: 1=Not at all important 2=Somewhat important 3=Important 4=Very important The frequency and percentage selecting each response category for each of the areas will be reported.

Data sources: TS= Trainee survey (TS: #) ; PI= PI interview protocol (PI: #)			
Research Question	**Topic**	**Data Source**	**Analysis Variable**
			Open-ended responses on why it is or is not important for someone to have the listed skill areas are collected. The data will be qualitatively coded to provide information on various topics, for example: Report examples on why or why not the skill area is important to interdisciplinary research. Are the identified skill areas distinct or do they overlap?
RQ2: What activities do projects implement to develop trainees' interdisciplinary research capacity, as characterized by these knowledge, skills or abilities? How do projects assess trainees' development as an interdisciplinary researcher?	Role of the different IGERT training activities in developing trainees' capacity in the six areas	PI: 4B, 5B, 6B,7B, 8B, 9B	Open-ended responses on activities and the role of the different activities in developing trainees in the six skill areas are collected. The data will be qualitatively coded to provide information on various topics, for example: What activities do PIs report as helpful to developing the six skill areas? How are the activities helpful? Can they identify a specific activity that is most helpful in developing each skill area? Is a common or varied set of activities used to develop each skill area?
	How IGERT faculty assess the development of trainees' interdisciplinary research capacity	PI: 11	Open-ended responses on how IGERT faculty assesses trainees' development as an interdisciplinary researcher are collected. The data will be qualitatively coded to provide

Data sources: TS= Trainee survey (TS: #) ; PI= PI interview protocol (PI: #)			
Research Question	**Topic**	**Data Source**	**Analysis Variable**
			information on various topics, for example: Methods used by IGERT faculty to assess trainees' development as interdisciplinary scientists.
RQ3: How helpful do trainees perceive their IGERT training to be in developing their capacity to conduct interdisciplinary research as characterized by these six areas?	Perceived helpfulness of IGERT training in developing IGERT trainees' capacity in the six areas Other knowledge, skills or abilities trainees report that their IGERT training helps to develop	TS: C2, C3	Variables from this question would be coded as: 1= Not at all helpful 2= Somewhat helpful 3= Helpful 4=Very Helpful The frequency and percentage selecting each response category for each area will be reported as well as any other reported areas Open-ended responses on other types of knowledge, skills or abilities that their IGERT training helped to develop are collected. These data will be qualitatively coded to provide a list of other types of knowledge, skills or abilities that their IGERT training helped to develop.
	Perceived helpfulness of individual IGERT training activities in developing trainees' overall capacity to conduct interdisciplinary research as characterized by these knowledge, skills or abilities	TS: C4 (if C2b=2 or 3); TS: C5 (if C2c=2 or 3); TS: C6 (if C2d=2 or 3); TS: C7 (if C2e=2 or 3); TS: C8 (if C2f=2 or 3); SKIP PATTERN NOTE: Series of questions will vary based on responses to C2 (see note on student survey skip pattern)	Variables from this question would be coded as: 1= Not at all helpful 2= Somewhat helpful 3= Helpful 4=Very Helpful 5=Do not know The frequency and percentage selecting each response category for each area will be reported.

Data sources: TS= Trainee survey (TS: #) ; PI= PI interview protocol (PI: #)			
Research Question	**Topic**	**Data Source**	**Analysis Variable**
	Contribution of other IGERT training activities to developing trainees' capacity to conduct interdisciplinary research as characterized by these knowledge, skills or abilities	TS: C4a (if C2b=2 or 3); TS: C5a (if C2c=2 or 3); TS: C6a (if C2d=2 or 3); TS: C7a (if C2e=2 or 3); TS: C8a (if C2f=2 or 3);	Open-ended responses on other IGERT training activities that were helpful in developing trainees' capacity to conduct interdisciplinary research as characterized by these knowledge, skills or abilities are collected. The data will be qualitatively coded to provide a list of other types of IGERT training activities that were helpful in developing trainees' skills and abilities to conduct interdisciplinary research

Data sources: TS= Trainee survey (TS: #) ; PI= PI interview protocol (PI: #)			
Research Question	**Topic**	**Data Source**	**Analysis Variable**
RQ3 (continued): How helpful do trainees perceive their IGERT training to be in developing their capacity to conduct interdisciplinary research as characterized by these six areas?	IGERT training activities participated in	TS: C1	The frequency and percentage selecting each response category will be reported. Responses will also be used to pre-populate items in C2 through C8
RQ4. How confident are IGERT trainees of their knowledge, skills, and abilities in these areas?	Trainees' perceptions of their confidence in these areas	TS: B8	Variables from this question would be coded as: 1= Not at all confident 2= Somewhat confident 3= Confident 4= Very Confident The frequency and percentage selecting each response category for each area will be reported. Responses may be analyzed by year in degree program.
RQ5: What challenges do trainees encounter with the IGERT	Trainees' perceived challenges to participating in IGERT	TS: C9	Variables from this question would be coded as: 1= Not at all

Data sources: TS= Trainee survey (TS: #) ; PI= PI interview protocol (PI: #)			
Research Question	**Topic**	**Data Source**	**Analysis Variable**
traineeship?			2= Somewhat 3= A great deal The frequency and percentage selecting each response category for challenge will be reported.
		TS:C10	Open-ended responses on the most difficult or challenging aspect of participating in the IGERT training program are collected. The data will be qualitatively coded to provide a list of challenges.
	PIs' perceived challenges that trainees experience in IGERT	PI: 12	Open-ended responses on challenges or difficulties IGERT trainees experience while participating in the IGERT training program are collected. The data will be qualitatively coded to provide a list of challenges.
Trainee background questions	Degree status	TS: A1, A2	If A1=Yes then Var=Graduated If A1=No and D2=Yes then Var=Still Enrolled If A1=No and D2=No then Var=Dropped Out The frequency and percentage in each response category will be reported.
	Discipline of degree	TS: D1	Variables will be coded as: 1=Sciences 2=Social Sciences 3=Engineering The frequency and percentage selecting each response category will be reported will be reported for each discipline.

Data sources: TS= Trainee survey (TS: #) ; PI= PI interview protocol (PI: #)			
Research Question	**Topic**	**Data Source**	**Analysis Variable**
Trainee background questions, continued			We will also report on the number and percent of respondents that selected two disciplines. Additional frequencies may be reported by sub-discipline.
	Demographic information (race/ethnicity, gender)	TS: D2, D3, D4	The frequency and percentage in each response category will be reported.
PI background questions PI background questions, continued	Role in developing IGERT proposal; involvement of faculty from other departments	PI: 1, 2, 3	These questions will provide information on the following topics: 1.) How was the IGERT project conceptualized, for example: - Why was the IGERT proposal developed? - How was the IGERT proposal developed? - Which department faculty was involved? - etc. 2.) What characteristics, interests, and/or skills do IGERT projects look for when recruiting/selecting trainees? - How competitive is the process of selecting IGERT trainees? - What are the academic requirements? - etc.