University of Pennsylvania

T32 Proposal Development Guide

Perelman School of Medicine
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Introduction and Contacts

The office of Biomedical Graduate Studies (BGS) provides guidance and information for Penn faculty and staff who are preparing new or continuing training grant proposals, including those based at affiliated institutions such as Children’s Hospital of Philadelphia and the Wistar Institute. A dedicated website includes this guide, a list of currently funded T32s, and other resources: [https://www.med.upenn.edu/training-grants-fellowships/](https://www.med.upenn.edu/training-grants-fellowships/)

BGS has been working closely with a team of developers in Penn Medicine Academic Computing Services (PMACS) to create the Training Grant database, which generates most of the NIH T32 Data Tables. The goal of the project is to provide a self-serve resource. Currently, the tables are generated by BGS staff, as described below, and provided to T32 PIs and their designees upon request.

While the BGS office seeks to provide as much assistance as possible in support of T32s, it must be noted that there are limits to the degrees and types of support that BGS staff can provide. There are approximately 80 T32s associated with Penn, CHOP, and Wistar, with expectations for proposal content varying significantly across grant type and NIH institute. Also, BGS does not have direct access to all the data that must be included in any T32 proposal. Finally, the development of a successful proposal is an iterative process, which requires a high degree of involvement, including various judgement calls, by the training grant PI at each stage. Adherence to the T32 Proposal Timeline in Appendix C will provide PIs with the most benefit from BGS staff and other contacts below.

It is also important to note that BGS is able to provide more support for T32s with predoc slots (or those with a combination of predoc and postdoc slots). See below for contact information on Biomedical Postdoctoral Programs (BPP), who provide some support on postdoctoral grant applications.

Dr. Stephen DiNardo is the Director of Training Support and Career Development in BGS, as well as a Professor of Systems Pharmacology and Experimental Therapeutics. He provides the following support and oversight:

- Identifies new training grant opportunities
- Works with faculty and administrative leaders across campus to identify training grant program directors
- Provides support to training grant program directors by interpreting NIH requirements and helping to ensure compliance with them
- Oversees BGS fulfillment of NIH-mandated components of T32 training, including the Training in the Responsible Conduct of Research and Methods for Enhancing Reproducibility, Individual Development Plans (IDPs), and Career Development Support

Judy Jackson, BGS Administrative Director, supports T32 directors in the following ways:

- Works with the PSOM IT office (PMACS) to develop and maintain a database for the generation of NIH training grant data tables, which queries data from various University and local sources
• Works closely with Aislinn Wallace (see below) to develop systems and processes for the management of training-grant related info. and to provide support for T32 proposals
• Oversees the shared predoctoral nomination web-based process for participating T32s

Aislinn Wallace is the BGS Associate Director for T32 Proposals, effective 3/1/2018. She:
• Provides support and guidance to individual PIs and their designees throughout the proposal development process
• Collects and maintains data not stored in other systems (e.g., training grant trainer lists, training grants slots [predoc/postdoc/short-term])
• Assists with the Training Grant database project
• Generates data tables upon request and advises on gathering non-automated data, with a goal of developing a self-service process for independent use by faculty and staff
• Collects and makes available boilerplate text and other documentation (RCR/SRR, Diversity Recruitment, Facilities and Environment, letters of support)
• Helps set up individual T32 websites

Marianne Altland, Grants and Fellowships Manager in the EVDCSO Finance Office, provides the following administrative support and advice:
• Develops budgets
• Uploads grant applications to PennERA for select grants
• Helps with just-in-time documentation

Marianne also provides post-award support for a limited number of T32 and R25 grants, including XTrain appointments and terminations. She is available to advise departmental BAs on post-award training grants management. She also supports BGS student F30 and F31 submissions.

Donita Brady, Assistant Dean for Inclusion, Diversity, and Equity (IDE) in Research Training, organizes recruitment of diverse trainees at the predoctoral, postdoctoral, combined degree, and professional masters levels of the Perelman School of Medicine. He also administers pipeline programs at the undergraduate, postbac, and postdoc levels. He provides the following support and information:
• Advises program directors on strategies for diversity trainee recruitment initiatives and ensures program representation at national conferences and symposia (ABRCMS, SACNAS, and others)
• Maintains records of individual faculty members’ participation in diversity recruitment and training activities
• Maintains data regarding admission of diversity trainees in affiliated programs (including BGS, SUIP, and PREP)

Ana-Rita Mayol, Director of Administration of Biomedical Postdoctoral Programs (BPP), manages information about postdoctoral trainees and training activities. BPP can provide upon request spreadsheets listing current and former (15+ years) postdoctoral trainees. BPP can also provide
departmental lists of participating faculty and the number of postdocs in each department, center &
institute. Finally, BPP has boilerplate descriptions relating to postdoctoral diversity recruitment, RCR
training, and professional skills and career development.

**Overview of the Process**

The process of assembling a competing T32 proposal is manageable with careful planning. Prospective
PIs are encouraged to contact the relevant NIH Program Officer for their advice on submitting a
proposal; to talk with PIs of similar awarded grants on campus; and to consult with faculty members
who lead relevant training programs, such as graduate group chairs, regarding the proposed training and
training populations and how the proposed training would integrate with existing training activities and
resources.

*Getting started with generating grant materials:* Please contact Aislinn Wallace and indicate a) the grant
mechanism (T32, R25, or other), b) whether this is a new proposal or a competing renewal, c) the
(working) title, d) the PI of the grant, e) a preliminary list of faculty trainers to be included in the grant
submission, and f) the grant deadline. Please note that some institutions only accept submissions during
specific submission periods; please verify with Program Officer that you can submit at the time
intended. See Appendix C for a T32 Proposal Timeline.

**T32 Data Tables - Introduction**

To determine which tables will be needed for your proposal (according to whether it’s a new proposal or
a renewal, predoc-only, postdoc-only, or combined, etc.), refer to the NIH data table formats and NIH
application guide, along with any institute-specific FOA that may apply.

Table data can be provided through a PMACS-developed database maintained by BGS that collects data
from several Penn-wide and PSOM databases: PennERA (grant funding), FIS, FEDS, and GGMA (faculty
appointments), SRS & SMS (student records), Career Tracker (alumni careers), and BPP (postdocs), and
Payroll. If there is a problem with the data, it may be a problem with the source data, or it may be a
problem with how the data is managed in the TG database.

Generally, it’s easier to develop the tables in Microsoft Excel (as opposed to Microsoft Word, which is
the file format for the NIH-provided sample tables). **There is no requirement that Microsoft Word be
used for the data tables.** The final version of the tables are uploaded to eRA Commons as PDFs. BGS
provides tables as Excel documents, which can be used to create the final PDFs.

**IMPORTANT:** Data table info. must be summarized in the Research Training Program Plan. PIs should
plan to review any BGS-provided data tables well in advance of the deadline. In many cases (per notes
on individual data tables, below), centrally-provided data must be reconciled with and/or supplemented by data obtained from local sources, e.g., non-BGS graduate group data, postdoctoral trainee admissions or outcomes data, CHOP-specific research or trainee data, etc.

Notes on Individual Data Tables

Table 1: Census of Participating Departments and Interdepartmental Programs

Table 1 is separated into Part I: graduate groups and predocs and Part II: departments and postdocs. Predoctoral education at Penn is organized through graduate groups, not departments, while postdocs are assigned, via their mentors, to departments. Faculty members may be members of multiple graduate groups, but they typically have a primary academic appointment in only one department. Some graduate groups have close relationships with departments (i.e., the graduate group of Biochemistry & Molecular Biophysics is closely affiliated with the Department of Biochemistry and Biophysics) but this is not always the case.

Departments vs Graduate Groups: faculty, predocs, and postdocs

<table>
<thead>
<tr>
<th>Department</th>
<th>Faculty</th>
<th>Predocs (PhD students)</th>
<th>Postdocs</th>
<th>Graduate Group</th>
</tr>
</thead>
</table>

Faculty will have a primary academic appointment in a single department*
Faculty who choose to train PhD students may be a member of 1 or more graduate groups
Predocs (PhD students) are admitted and trained within a graduate group, not a department**
Postdocs are associated with the faculty supervisor's department, not with any graduate group

* Penn Integrates Knowledge faculty may be primary in 2 departments

** While theoretically data is available about the number of predocs working with faculty in a department, there are 2 problems with reporting predocs by department: 1) predocs would be double-counted if also reported on by graduate group, and 2) predocs in the first 1-2 years of training, who are not yet formally associated with a faculty member, would not be included in the counts.

Part I: Graduate Groups and Predocs

Part I of table 1 shows the membership affiliations with various graduate groups of the grant’s faculty trainers. This information comes from University Workday data. A reference table of the faculty members in the associated departments is provided in the subsequent tabs. It also shows numbers of predocs in the group and the number of predocs in the group who are supported by any HHS training funds.
As of March 2020, updates to the data tables incorporated the option to omit part I. This is open to interpretation, and the final decision on whether to include part I should be made by the PI. The exact language reads as follows:

*Applicants proposing research training in settings where there are no students in predoctoral research training, such as some clinical departments or divisions, should omit Part I; all other applicants are expected to complete Parts I and II, regardless of whether this is a predoctoral or postdoctoral program application.*

This can be interpreted in two ways:

1. If the T32 itself has no predoc slots, it could be interpreted as a ‘setting where there are no students in predoctoral research training,’ meaning part I can be omitted.
2. If the T32 is awarded to Penn, the university can be considered to be a setting where significant predoctoral research training takes place, meaning part I should be included (even if there are no predoc slots on the grant.

BGS maintains data for predocs in the BGS grad groups. The database performs queries of predocs in other graduate groups (e.g., Biology, Psychology, Bioengineering) from the data warehouse (the source system is the University’s Student Record System) but not all graduate groups maintain data in the same manner as BGS does, so we suggest you confirm data regarding any non-BGS groups. BGS can help find the appropriate contact points for these grad groups.

Note that every graduate group in which one or more trainers on a T32 are members will display on this table by default – **this is just a starting point.** However, most T32s have a specific training focus and are likely to support students in only a few graduate groups. The purpose of this part of the table is to outline the specific academic training environment, not necessarily the array of grad groups represented by the trainers. Therefore, in most cases, a PI will choose to list only the graduate groups relevant to the grant and will eliminate the others. A good rule of thumb is to include graduate groups from which you are likely to appoint trainees to the grant (or have appointed trainees in the past). If needed, BGS can help to identify graduate groups for PSOM predocs.

As of March 2020, Part I is only expected to be provided for T32s that predoctoral training. It is up to the PI to determine which graduate groups are relevant by looking at numbers of participating trainers and/or training activities shared by predocs and postdocs. As noted earlier, in some cases, there are close relationships between a department and a graduate group (such as the Biochemistry & Molecular Biophysics Graduate Group and the Department of Biochemistry and Biophysics), so finding those relationships can make it easier to determine which graduate groups to include for a postdoc only grant.

Some T32s provide specialized training to predocs in some but not all of the 6 programs of Cell and Molecular Biology (CAMB). Data for individual CAMB programs can be provided if necessary, but is also provided for the graduate group as a whole.
Column 5 refers to predocs supported by any HHS training award (e.g., T32, F31); data are gathered from payroll and grants databases. Columns 6 and 7 refer to predocs with participating faculty (i.e., the trainers on the grant); data are gathered from the university’s student records database. A reference table is provided, listing the trainees in the graduate group and their HHS support, and their trainers. Currently, BGS needs to vet the data in these columns because the automated queries are not completely reliable. If listing non-BGS graduate groups, verification of the data with the graduate group coordinator is recommended.

Column 8 refers to actual appointees to the training grant for renewal applications. This column is currently left blank to ensure that PIs check the appointment data (in the event that source systems don’t reflect it accurately). The total for this column should equal the number of predoc trainee slots.

Part II: Departments and Postdocs

The departments displayed in this table reflect the primary academic appointments of the trainers on the grant. Faculty on the tenure, C-E, and research tracks are counted; other faculty are not. A reference table of the faculty members in the associated departments is provided in the subsequent tabs. NOTE: As above, it may not be necessary to list every single department in which trainers have appointments; some PIs elect to show only those that are considered to be “participating” in the training associated with the grant and in some cases to count faculty with a secondary instead of primary department. It is up to the PI to make this determination. These adjustments should also be reflected in table 2 and in the narrative portion of the proposal.

Note that faculty who have adjunct Penn appointments (e.g., faculty who are at Wistar, Fox Chase, NIH, etc.) are counted within the dept. of their adjunct appointment, and their postdoc info. is probably not reflected. A reference table is provided that shows the faculty member’s title (e.g., Wistar Prof); you may decide to list these faculty according to their external institution (e.g., Wistar) instead of according to their adjunct department. Note that CHOP faculty are counted according to their Penn appointment.

Reference tables are provided to show the faculty and postdocs in the participating departments. Trainers are bolded, as are postdocs receiving HHS support. Predoc data reflect people with predoc job class codes associated with the department org and grant support of the trainers. The data in this table are not yet reliable. For example, sometimes predocs are paid from a different ORG than their advisor.

For now, it is important to verify the data in this table. First, work with BGS to determine whether validation of postdoc-specific data for the selected departments could be completed, using queries from the data warehouse. Generally, this validation will be available for departments within PSOM which appoint non-clinical postdocs. For departments BGS is not able to address, this data should be collected from the departments directly.
Table 2: Participating Faculty Members

This table reflects the faculty trainers on the grant, with degree, rank, and primary academic department as reflected in the University's FIS database. Since there is no consistent source for research interests and since only interests relevant to the grant should be displayed, this column is left blank by BGS and should be populated by the PI. The TG database doesn't store roles other than Preceptor (aka Trainer/Advisor/Mentor) and PI/PD, so other roles (eg, Exec Com) must be populated by the PI. Up to three roles can be included.

Columns 7, 8, and 9 (on predoctoral trainees) reflect data in the University’s student records system and career tracker system. A reference table is provided listing the individuals. It is important to verify this information with trainers, particularly for non-BGS students, whose data may not be managed a manner consistent with BGS data in the source systems.

Columns 10, 11, and 12 (on postdoctoral trainees) reflect data in several University systems. A reference table is provided listing the individuals. It is important to verify the information with the trainers. A common source of confusion with this table is that these columns should reflect trainees for the last 10 years (as opposed to a career total) so when requesting data from trainers, it’s important to be clear about this timeframe. BGS can provide sample text to use when emailing trainers.

When reviewing this table, it is likely that the study section members will use this table to assess how many trainees the mentors on the trainer list have trained.

Table 3: Federal Institutional Research Training Grants and Related Support

Table 3 shows all the other T32 grants on which the trainers of the grant in question are trainers; R25 and K12 grants are shown as well. The data come from PennERA and are supplemented by manual entry of individual trainers and slots in the TG database. Grants not managed by Penn, e.g., CHOP and Wistar T32s, are included in this table. BGS staff enter non-Penn grant into the TG database manually. Note that some R25 and K12 grants provide funding for workshops or other training activities but do not have associated slots, so their slot columns contain no data. While the instructions call for inclusion of these K12 and R25 grants, some PIs choose not to include them.

Table 4: Research Support of Participating Faculty Members

Table 4 shows the research grant support of faculty trainers as available from PennERA. Trainers whose research grants are managed elsewhere (e.g., CHOP and Wistar faculty) will need to provide their research grant information — they will appear in BGS-provided tables as having no grant support. In any event, it is recommended that the research grant information provided in this table be verified with the trainers. Often, this can be done using the ‘Other Support’ section of the trainer-provided data.
The instructions for this table ask only for grants where the trainer has a PD/PI role (or a project lead role). BGS-provided tables include all grants, in the case of a multi-PI grant where the co-PI does not appear as such. Many of these grants are NIH, and NIH Reporter is a great resource to further examine grants in question. The PI should determine which grants should be included in the final version of this table. There are specific guidelines in the NIH instructions as to how to calculate the Current Year Direct Costs, and how to calculate the average support per faculty member.

Tables 5A and 5B: Publications of Those in Training

BGS has a very preliminary version of this table that can be provided upon request. These tables are derived from simple Pubmed searches of trainer and trainee names. They are only a starting point and must be verified with the trainers.

This table is listed by trainer but the purpose of the table is to highlight trainee publications. The trainers should be listed in alphabetical order, then adding trainees and their publications (being sure to bold the trainee name in the author list). The purpose of this table is to demonstrate that the training program is successful in the sense that it results in trainee publications. So, when possible, include publications that are a result of the training program. If a trainee does not have any accepted publications at the time the table is created, a reasoning should be provided in the table as to why. As of 2020, publications accepted to journals may be included, although there’s no way to track this in PubMed.

Note that if a faculty member is no longer a trainer on the grant (for example, because of retirement or a move to another institution or a change in research), his trainees will not display automatically, even if his trainees were supported by the T32. A recommended solution is to list all the publications of all the trainees (listed by mentor, according to the instructions) and to mark in bold the mentors who are current trainers on the grant.

Tables 6A and 6B: Applicants, Entrants, and Their Characteristics for the Past Five Years

6A: Predocs. As with Table 1 (Part I), the PI will need to determine which graduate groups provide training relevant to the grant. In most cases, this is done using the same list of graduate groups from Table 1, Part I. BGS currently provides admissions data only for the BGS graduate groups may have some of this data for non-BGS groups as well. If a PI wishes to show admissions data for one or more of the 6 CAMB programs, this can be provided. However, since this table is not yet automated, BGS staff require advance notice to provide customized versions of this table. The last column, reflecting actual appointees to the grant, is currently left blank in order to ensure the data are vetted by the PI. Data to complete this column can be provided by BGS for relevant trainees, which must be added to the section specific to the year that the trainee entered their PhD program or postdoctoral fellowship. It is
important to note that trainees are listed on the table in accordance with their year of matriculation to the PhD program, not the year in which they were appointed to the T32.

This table asks for information on the most recently completed academic year, so it may not be the most recent admissions cycle that is reflected on the table. The timeframe should be determined by the most recently completed academic year, then calculating the 5 preceding academic years.

Note that this information reflects BGS PhD admissions only. MD/PhD and VMD/PhD admissions are managed by other source systems. The Combined Degree Office can provide a version of this table for MD/PhD applicants; contact Maggie Krall for assistance. If a non-BGS graduate group needs to be included, it will be necessary to contact the group’s coordinator; BGS can assist with this.

6B: Postdocs. This information is not currently available centrally. This table is formatted the same way as table 6A in that it contains ‘admissions’ data for postdocs. This is more difficult to track than predoc admissions data, since there is no central process for admissions for postdoctoral fellows. In theory, this table should reflect the entire ‘pool’ of applicants for postdoctoral fellowships in the departments profiled in table 1, part II.

It may be useful to coordinate with BPP for guidance on how to collect the information required for this table.

Table 7: Appointments to the Training Grant for Each Year of the Current Project Period (Renewals)

This table should be provided by the grant’s business administrator. Marianne Altland can help for predoctoral training grants that support BGS students.

Tables 8A and 8B: Program Outcomes

8A Part I: Those Appointed to the Training Grant (Non-Competing and Competing Renewals)

This table must include all trainees who were supported by the grant at any time during the last 15 years. The Start Date in column 3 refers to the start date in the degree-granting program, not the start date on the grant. An automated version of this table is available. However, since each grant must update the table annually for non-competing renewals, many PIs elect to use their own version and request verification on individual data points from BGS. The TG database can populate all but the last column (Subsequent Grant(s)/Role/Year Awarded). Data for that column must be researched and updated manually. In addition, the Summary of Support During Training column is not fully automated and must be verified manually (BGS staff can do this for BGS trainees). Finally, the Initial and Current Position columns are not automated to the extent that the positions must be classified according to the
instructions using two separate categories: the workforce sector (i.e., academia, government, for-profit, nonprofit, other) and principal activity (i.e., primarily research, primarily teaching, primarily clinical, research-related, further training, unrelated to research). These classifications must be done manually. In cases where the trainee is still in their initial position, you should include the position only in the Initial Position Field. In the event that a trainee was on the same grant as both a predoc trainee and a postdoc trainee, they should only be included in this predoc version of the table.

8A Part II: Those Clearly Associated with the Training Grant

This table requires identification of trainees who are current students, not necessarily training-grant eligible, who are receiving identical training to those students who are appointed to the grant – classified as ‘Clearly Associated’. They should also have received HHS support (e.g., T32, F31, R01, etc.). Much like Clearly Associated, ‘Identical training’ is up for interpretation – it could refer to trainees who would be a good academic fit, trainees who applied to be appointed to the training grant but were not selected, or another set of criteria determined by the PI.

BGS can provide a preliminary version of this table with all current trainees who are mentored by trainers on this grant and who are in any of the graduate groups represented by the faculty trainers. Each PI will need to determine which students to include (there may be trainees who do not fall into these categories but may be able to be considered ‘Clearly Associated’.) Typically, they are students enrolled in any closely associated graduate groups and working with the grant’s trainers. BGS staff can manually populate this table with BGS student information.

In March 2020, the guidance on this table shifted, and it may be necessary to include data on former trainees. Please review the table instructions carefully to verify the trainee data that is needed for this part of the table.

8A Part III: Recent Graduates

This section is only for new applications or grants that haven’t supported predocs in the past but are requesting predoctoral support. Since NIGMS (as of May 2018) requires all grants (even when previously funded) to be submitted as NEW application, Part III must be used instead of Parts I and II for NIGMS predoctoral applications. It should include students who have graduated but would have been supported in the past 5 years. As with Part II, each PI will need to determine which students to include.

8A Part IV: Program Statistics

Percentage of Trainees Entering Graduate School 10 Years Ago Who Completed the PhD. Note that this is a snapshot of trainees appointed to this grant who entered 10 years ago. A grant submitted in 2018 should show the percentage of students who were appointed to the grant who enrolled in PhD training 2008. Often the n is very small. According to the instructions, this should reflect ONLY the students
who enrolled 10 years ago (NOT all the students who enrolled in the past 10 years), and it should reflect ONLY the students appointed to this grant (NOT all the students in a given graduate program). BGS is able to assist with this information and to provide comparison data to those PIs who wish to refer to in the text of the grant.

*Average Time to PhD for Trainees in the Last 10 Years (not including leaves of absence).* This is a running average for all of the trainees appointed to the grant who completed the PhD in the past 10 years. BGS is able to assist with this information. Note that this is NOT an average for all of the trainees appointed to the graduate program (although the latter can be provided by BGS as comparison data for use in the text of the grant). Note that the calculation should be time to degree award, not time to thesis defense.

**8B and 8C:** These data are not yet available from the TG database. Contact Ana-Rita Mayol in BPP for assistance with table 8C.

*Note on xTRACT:* use of xTRACT is required for RPPRs, but currently not required for new applications or competing renewals. See below for more details.

**Institutional Letter of Support**

As of the May 2020 submissions, many institutes are now requiring a single, 10-page letter of institutional support detailing Penn’s infrastructure and commitment to support T32 programs. This letter must contain information from a variety of sources at the university, and should be signed by President, Provost, Dean or key institutional leader. In some cases, this letter must be co-signed by leaders from different schools at Penn, or even by leaders from other institutions (for example, CHOP or Wistar). Depending on whether the grant supports predocs and/or postdocs, the letter would need to provide details on each section of the letter in the FOA, specific to predoc and postdoc support.

**Upload/Submission Process**

Formatting: Once the content of the tables is complete (see below for details on formatting), review this page: [https://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/format-attachments.htm](https://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/format-attachments.htm) to verify that the tables follow the guidelines. Failure to meet some of the criteria on this page could cause error messages in the upload process. Verify that you have all parts of all required tables completed. Save or print the tables as PDFs. Check the tables once the PDF is created to ensure that they are legible and appear in the format you expect them to.

Some common issues that lead to error messages during the upload process:
• Remove bookmarks from all PDFs (bookmarks cause an error message when uploading). Bookmarks are automatically added when combining PDFs into a single document.
• Ensure that each table has a margin of 0.5” on all sides
• Do not include page numbers or headers other than the table number. These will be applied automatically applied to the document during the upload.
• If you use Excel workbooks that have data in multiple tabs, ensure that you are combining all of the data into a single document per table. For example, BGS provides each part of table 6A in its own tab. These must be saved as PDFs then combined in Adobe Acrobat.

Other Aspects of T32 Proposal Development

NIH Grant IDs: Some tables involve knowledge of other NIH grants, data on which is available in NIH Reporter. The grant IDs provide very helpful details on the grants themselves, and you can use NIH Reporter to search specific mechanisms, or for grants from a specific institute. See below for a diagram on each component of the grant ID:

```
  1  
Application Type  R01  GM  987654  01  A1
  Activity Code   IC Code  Serial Number  Support Year  Extension for Amended Application
```

xTRACT: NIH encourages PIs to submit renewals using xTRACT in order to auto-generate data tables with NIH data. The use of xTRACT is only required for RPPRs at this time. As such, it must be used to complete the table 8 to be submitted with the rest of the materials. Contact Aislinn Wallace for more details on how to use xTRACT to create a satisfactory table.

Soliciting information from/verifying information with trainers. Once you have your initial set of data tables, you should plan to run the relevant tables by your trainers for verification. This is particularly important for tables 2 (note that the column for research interests, which should clearly relate to the grant in question, is not filled) and 4. You will also want to get additional items from them, including their biosketch. A sample memo is provided in Appendix A.

Biosketches. Biosketches should comply with NIH and any specific FOA instructions. The Personal Statement paragraph should include the number of predocs and postdocs mentored as well as other roles the trainer has played in the education of trainees similar to those addressed in the proposal. Please note that instructions for biosketches have changed as of 2021 – please review the relevant notices related to the institute in question.
General formatting notes. The data tables are provided in Excel in approximately the format suggested in the NIH instructions. (The NIH templates are in Word. They are submitted as a PDF, so it does not matter whether you use Excel or Word to complete the tables.) Some PIs choose to modify the formats in accordance with specific requirements (e.g., for new grants vs. renewals) and the interests of their particular grant. Text and tables are to be submitted in 11 point font. More details can be found here: https://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/format-attachments.htm

Text and Data for Other Grant Sections. BGS can provide text and supporting data upon request for various sections of a T32 beyond the data tables. Contact Aislinn Wallace for these documents related to BGS training. BPP-specific information is also available (by request directly to BPP). These sections include:

- Facilities & Other Resources AND Institutional Environment and Commitment to Training
  BGS can provide boilerplate regarding BGS/PSOM resources for PhD student training. Individual graduate groups have material as well. Additional information about core facilities is under development.

- Recruitment Plan to Enhance Diversity
  BGS can provide a boilerplate statement and list of individual faculty members’ participation in recruitment and mentoring activities, including attendance at national symposia (ABRCMS, SACNAS, etc), visits to minority serving undergraduate institutions, and mentoring of BGS students and postdoc, postbac, and undergrad participants in IRACDA, PREP, and SUIP. These documents are maintained by ORDT. The PI should modify the tables in the boilerplate to reflect the specific activities of the grant’s trainers. In addition, many activities of the faculty in these areas may not be reflected in central records (e.g., mentoring of a Penn URM summer undergrad not in the BGS SUIP program or participation as a local high school science fair judge) or may have been coordinated at the level of BGS (e.g., in connection with SAS or SEAS). It’s crucial that faculty trainers be expected to participate in a variety of activities and provide documentation of their participation for each renewal. BPP maintains similar boilerplate.

- Plan for Instruction in the Responsible Conduct of Research AND Methods for Enhancing Reproducibility
  BGS can provide a boilerplate statement and list of individual faculty members’ participation in BGS-mandated RCR training and (for those institutes that now require it) Methods for Enhancing Reproducibility. This information is managed by Steve DiNardo and BGS staff. BPP has similar information for postdoctoral training. As above, it is important to verify this information with the trainers and obtain from them information about any non-BGS-organized RCR or Reproducibility training they may have done.

- Career Development
  BGS organizes various career development activities and resources, as documented on a career-focused website, and is in the process of developing relevant text for T32 submissions. https://bgs-careerdevelopment.com/

- Letters of Support
  BGS can provide a letter from the Associate Dean for Graduate Education/BGS Director in support of a T32. However, please verify which letter of support is required for your application. This should be available in the FOA. BPP can provide a similar letter for grants with postdoctoral slots. Please note that as of March 2020, many requirements have shifted to a single, institutional letter of support. This may preclude the submission of additional letters by BGS or BPP. Any questions can be referred to the NIH Program Officer.
Glossary (work in progress)

Funding Mechanism
Institute
Progress Report
RPPR
xTRACT
APPENDIX A: Sample Trainer Data Solicitation Memo

Dear Trainer on the [Name of the] Training Grant – [Number if applicable]:

We are preparing a [competing continuation] proposal for this training grant. We’re writing to you as a trainer on this grant. In order to assemble the proposal for the upcoming submission deadline, we will need the following information from you at your earliest possible convenience (please provide it no later than [date]).

1) Your 5-page NIH style biosketch (new format)

Please include a personal statement relevant to your training area. In the personal statement please describe your commitment to pre- and postdoctoral training with the following statement: “I am committed to pre-doctoral and post-doctoral training since I have trained x and y pre- and post-doctoral fellows. With respect to this application I can provide training in the following broad areas that are associated with [grant training area] <name those areas>.”

2) A few research interest keywords (relevant to this grant), along with information about the number of predocs and postdocs you have mentored over the past 10 years for Table 2. If possible, please indicate the names of the trainees in each category so that we may cross-check them with trainee data in Penn databases.

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree(s)</th>
<th>Rank</th>
<th>Primary Department or Program</th>
<th>Research Interest</th>
<th>Training Role</th>
<th>Pre-doctorates in Training</th>
<th>Pre-doctorates Graduated</th>
<th>Pre-doctorates Continued in Research or Related Careers</th>
<th>Post-doctorates in Training</th>
<th>Post-doctorates Completed Training</th>
<th>Post-doctorates Continued in Research or Related Careers</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Q. Faculty Member</td>
<td>PhD</td>
<td>Asst. Prof.</td>
<td>Pharmacology</td>
<td>Regulation of Synthesis of Biogenic Amines</td>
<td>Preceptor or Other Commit</td>
<td>1 [Jay Smith]</td>
<td>2 [Jane Jones, Mae Brown]</td>
<td>2 [Jane and Mae]</td>
<td>1 [Ron Murph y]</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

3) Current Other Support Pages. Please make sure that the grants listed in your NIH biosketch under “Active Support” are consistent with your “Other Support.” While we are able to extract this information from Penn’s grant management system (for faculty whose grants are run through Penn), we would like you to submit this information for comparison. This is how it will need to appear in Table 4.

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>Funding Source</th>
<th>Grant Number</th>
<th>Role on Project</th>
<th>Grant Title</th>
<th>Project Period</th>
<th>Current Year Direct Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jones, Janine L.</td>
<td>NIH</td>
<td>1 R01 GM76259-01</td>
<td>PD/PI</td>
<td>Structure and Function of Acetylcholine Receptors</td>
<td>06/2014 – 05/2018</td>
<td>$190,000</td>
</tr>
</tbody>
</table>

Table instructions and samples can be found here: https://grants.nih.gov/grants/forms/data-tables/forms-d.htm

4) Your participation in the recruitment and training of Diversity Trainees, i.e., underrepresented minority (URM) and disabled trainees (and, in respect to trainees at the high school and undergraduate level, disadvantaged trainees). NIH’s Diversity Definition and other information is provided here: http://grants1.nih.gov/training/faq_diversity.htm

Although BGS maintains data on faculty who have participated in BGS-organized Diversity Recruitment and Training activities (e.g., recruitment at ABRCMS or SACNAS, mentoring of a Diversity Trainee at the undergrad, postbac, or predoc level, giving a scientific talk to undergraduates at a minority serving college), many of you have no doubt participated in additional recruitment and training activities, such as mentoring Diversity postdocs, serving as a judge at a Philadelphia public school’s science fair, and the like. Please provide us with details on those activities, including dates.

5) Your participation in Training in the Responsible Conduct of Research

NIH expects that training faculty to contribute to formal and informal instruction in the responsible conduct of research. BGS maintains a record of faculty members’ participation as small group RCR workshop facilitators and as lab-based RCR session leaders. However, if you have contributed to RCR training outside of BGS, or if you have conducted any RCR training specific to your lab that may not have been reported to BGS, please document it so that it can be reported in this grant.
We very much appreciate your willingness to serve as a trainer on this grant and your cooperation in providing us with your documents in a timely manner. Please send your replies to [Name] at [email].

APPENDIX B: Components of a T32 Competing Proposal [in progress]

The main components of a T32 proposal are listed below, including some of the specific instructions for training grant applications. Details are provided in the NIH application guide and specific instructions for training grants. Expectations vary by institute, and it is vital that you check the FOA, which supersedes the general application instructions.

Project Summary/Abstract
Summarize the objectives, rationale and design of the research training program. Provide information regarding the research areas and scientific disciplines encompassed by the program. Include a brief description of the level(s) (i.e., undergraduate, predoctoral, postdoctoral, faculty) and duration of the proposed training, the projected number of participating trainees and their anticipated levels of experience. This section must be no longer than 30 lines of text and must follow the required font and margin specifications.

Project Narrative
Using no more than two or three sentences, describe the relevance of this research training program to public health. In this section, use plain language that can be understood by a general, non-scientific audience.

Facilities & Other Resources
Describe the facilities and resources that will be used in the proposed training program, including any foreign performance sites. Indicate in what ways the applicant organization will support the program, financial or otherwise (e.g., supplementation of stipends, protected time for mentoring, support for student activities). This could also include, for example, space, shared laboratory facilities, and equipment, funds for curriculum development, release time for the PD/PI and participating faculty, support for additional trainees in the program, or any other creative ways to improve the environment for the establishment and growth of the research training program. BGS can provide some boilerplate and provide suggestions for customization.

Training Budget Form
Marianne Altland can provide assistance.

Research Training Program Plan
1. Introduction -- For Resubmission or Revision only
2. Program Plan - 25 page limit applies to all of section 2 (excluding data tables 1-8 but including any additional tables) -- NOTE THAT PROGRAM PLAN INSTRUCTIONS AND COMPONENTS MAY VARY BY INSTITUTE; CHECK FOA
A. Background -- Refer to data in tables 1, 2, and 3 as applicable
B. Program Plan
   a. Program Administration
   b. Program Faculty -- Refer to data in tables 2, 4, and 5
   c. Proposed Training
   d. Training Program Evaluation
   e. Trainee Candidates -- Refer to data in table 6
   f. Institutional Environment and Commitment to Training -- Boilerplate available
g. Qualifications of Trainee Candidates and Admissions and Completion Records – Refer to data in tables 7 and 8

C. Recruitment Plan to Enhance Diversity – 3 page limit, Boilerplate available

3. Plan for Instruction in the Responsible Conduct of Research – 3 page limit, boilerplate available

4. Plan for Instruction in Methods for Enhancing Reproducibility – 3 page limit, boilerplate available

Now required for NIGMS Proposals; check for other institutes

5. Multiple PD/PI Leadership Plan – for Multiple PD/PI applications only

6. Progress Report – For Renewal applications only

7. Participating Faculty Biosketches – Some institutes now require biosketch to include a personal statement with research AND training statement for all trainers, not just PI/key personnel; check current requirements for your institute

8. Letters of Support – Letters available through BGS, BPP, EVDCSO

9. Data Tables

10. Human Subjects – May check No; boilerplate available

11. Data Safety Monitoring Plan – If “Clinical Trial” = Y

12. Vertebrate Animals – May check No; boilerplate available

13. Select Agent Research – If “Select Agents” = Y

14. Consortium and Contractual Agreements – If consortiums/contracts in budget

15. Appendix - As of 2017, Appendix materials are sharply limited; check FOA
### APPENDIX C: Timeline for T32 Proposal Development Using Central Resources

<table>
<thead>
<tr>
<th>Task Completion Target Date</th>
<th>Pre NIH Deadline</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/25</td>
<td>5/28</td>
<td>9/27</td>
</tr>
</tbody>
</table>
|                              |                  |      | - Develop initial list of trainers and invite them to participate.  
|                              |                  |      | - Read FOA and any applicable notices to confirm requirements  
|                              |                  |      | - Contact BGS with intent to submit  
| 2/4                         | 6/7              | 10/7 | 110 Days |
|                              |                  |      | - Provide list of willing trainers to BGS. Normally, within 2 weeks of receiving the list, BGS will put the following info in a Penn Box folder: a) starter set of tables 1-4 for postdoc-only grants, as well as 5A, 6A, 8A for grants with predoc slots; b) for grants with preds, a set of boilerplate text and supporting trainer information for RCR, diversity, resources & environment, etc.; c) a sample email to trainers to collect information; and a grant checklist, indicating next steps  
|                              |                  |      | - Ideally, the PI and administrators working on the proposal should meet with BGS once the initial drafts of the tables are ready in order to discuss table details and next steps.  
| 3/1                         | 7/2              | 11/1 | 85 Days |
|                              |                  |      | - Review checklist, starter tables, boilerplate, trainer email. Contact trainers with requests for specific data points.  
|                              |                  |      | - Contact uploader to discuss timeline for upload  
|                              |                  |      | - Contact ORSS  
| 3/6                         | 7/7              | 11/6 | 80 Days |
|                              |                  |      | - (Ongoing) reply to BGS to indicate any changes to trainer list based on starter tables and indicating the participating graduate groups and departments so that BGS can prepare new versions of the affected tables (normally within one week).  
| 3/11                        | 7/12             | 11/11| 75 Days |
|                              |                  |      | - Solicit information from trainers on updated list: biosketches, other support, verification of trainee info, participation in relevant activities (RCR training, diversity recruitment, etc.). Can use Trainer Data Solicitation document provided by BGS to facilitate this process  

Note: check the FOA for institute-specific deadlines
<table>
<thead>
<tr>
<th>Date Range</th>
<th>Task Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/26 - 7/27</td>
<td>If the grant has postdoc slots, contact BPP for boilerplate and postdoc data, including postdocs by dept. and with trainers. Verify and assemble trainers' info. for relevant tables (1, 2, 4 in particular), recruitment and training sections, biosketches. Add relevant data to starter tables provided by BGS. Solicit/verify info. from current &amp; former trainees (publications, research, positions, etc. since RPPR for renewals, and add'l info. needed for both competing renewals and new grants). BGS can provide data on BGS graduates' current employment for table 8A. Determine contacts for any information not complete in tables (e.g., non-BGS predoc info. for tables 1 and 6A, postdoc info. in various tables) and begin collecting (BGS can help).</td>
</tr>
<tr>
<td>4/10 - 8/11</td>
<td>Write research training plan, including data table information; determine if additional data will need to be collected. If trainers are removed from the grant, BGS can provide updated tables.</td>
</tr>
<tr>
<td>4/10 - 8/11</td>
<td>Customize boilerplate on diversity, RCR, and the like to reflect activities of the participating trainers and programs, and develop new plans.</td>
</tr>
<tr>
<td>4/25 - 8/26</td>
<td>Request letters of support, assemble/finalize grant for upload. Double check for any updates to FOA or notices.</td>
</tr>
<tr>
<td>5/10 - 1/10</td>
<td>Check formatting against NIH guide. Work with ORSS to process the final review process.</td>
</tr>
</tbody>
</table>