

---

## **List of Suggested Reviewers or Reviewers Not To Include (optional)**

---

### **SUGGESTED REVIEWERS:**

Nicholas J. Horton, Beitzel Professor in Technology and Society (Statistics and Data Science)  
Department of Mathematics and Statistics, Amherst College  
nhorton@amherst.edu

### **REVIEWERS NOT TO INCLUDE:**

---

**List of Suggested Reviewers or Reviewers Not To Include (optional)**

---

**SUGGESTED REVIEWERS:**

Not Listed

**REVIEWERS NOT TO INCLUDE:**

Not Listed

---

**List of Suggested Reviewers or Reviewers Not To Include (optional)**

---

**SUGGESTED REVIEWERS:**

Not Listed

**REVIEWERS NOT TO INCLUDE:**

Not Listed

---

**List of Suggested Reviewers or Reviewers Not To Include (optional)**

---

**SUGGESTED REVIEWERS:**

Not Listed

**REVIEWERS NOT TO INCLUDE:**

Not Listed

---

**List of Suggested Reviewers or Reviewers Not To Include (optional)**

---

**SUGGESTED REVIEWERS:**

Not Listed

**REVIEWERS NOT TO INCLUDE:**

Not Listed

The following information regarding collaborators and other affiliations (COA) must be separately provided for each individual identified as senior project personnel. The COA information must be provided through use of this COA template.

Please complete this template (e.g., Excel, Google Sheets, LibreOffice), save as .xlsx or .xls, and upload directly as a Fastlane Collaborators and Other Affiliations single copy doc. Do not upload .pdf.

Please note that some information requested in prior versions of the PAPPG is no longer requested. **THIS IS PURPOSEFUL AND WE NO LONGER REQUIRE THIS INFORMATION TO BE REPORTED.** Certain relationships will be reported in other sections (i.e., the names of postdoctoral scholar sponsors should not be reported, however if the individual collaborated on research with their postdoctoral scholar sponsor, then they would be reported as a collaborator). The information in the tables is not required to be sorted, alphabetically or otherwise.

There are five separate categories of information which correspond to the five tables in the COA template:

**COA template Table 1:**

List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

**COA template Table 2:**

List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

**COA template Table 3:**

List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

- The individual's Ph.D. advisors; and
- All of the individual's Ph.D. thesis advisees.

**COA template Table 4:**

List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

- Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and
- Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

**COA template Table 5:**

List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.

- Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and
- Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.

The template has been developed to be fillable, however, the content and format requirements must not be altered by the user. This template must be saved in .xlsx or .xls format, and directly uploaded into FastLane as a Collaborators and Other Affiliations Single Copy Document. Using the .xlsx or .xls format will enable preservation of searchable text that otherwise would be lost. It is therefore imperative that this document be uploaded in .xlsx or .xls only. Uploading a document in any format other than .xlsx or .xls may delay the timely processing and review of the proposal.

This information is used to manage reviewer selection. See Exhibit II-2 for additional information on potential reviewer conflicts.

1 Note that graduate advisors are no longer required to be reported.

2 Editorial Board does not include Editorial Advisory Board, International Advisory Board, Scientific Editorial Board, or any other subcategory of Editorial Board. It is limited to those individuals who perform editing duties or manage the editing process (i.e., editor in chief).

List names as Last Name, First Name, Middle Initial. Additionally, provide email, organization, and department (optional) Fixed column widths keep this sheet one page wide; if you cut and paste text, set font size at 10pt or smaller, and To insert *n* blank rows, select *n* row numbers to move down, right click, and choose Insert from the menu.

You may fill-down (ctrl-D) to mark a sequence of collaborators, or copy affiliations. Excel has arrows that enable sorting. For "Last Active Date" and "Last Active" columns dates are optional, but will help NSF staff easily determine which information remains relevant for reviewer selection.

"Last Active Date" and "Last Active" columns may be left blank for ongoing or current affiliations.

**Table 1:** List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

1	Your Name:	Your Organizational Affiliation(s), last 12 r	Last Active Date
	Ball, Richard J.	Haverford College	

**Table 2:** List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

R: Additional names for whom some relationship would otherwise preclude their service as a reviewer.

*to disambiguate common names*

2	Name:	Type of Relationship	Optional (email, Department)	Last Active
R:	Ball, Laurence M.	Brother	lball@jhu.edu	

**Table 3:** List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following.

G: The individual's Ph.D. advisors; and

T: All of the individual's Ph.D. thesis advisees.

*to disambiguate common names*

3	Advisor/Advisee Name:	Organizational Affiliation	Optional (email, Department)
G:	Rausser, Gordon C.	University of California, Berkeley	Agricultural and Resource Economics

G:	Simon, Leo K.	University of California, Berkeley	Agricultural and Resource Economics
G:	Hermalin, Benjamin E.	University of California, Berkeley	Economics

**Table 4: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:**

- A: Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and  
C: Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

*to disambiguate common names*

4	Name:	Organizational Affiliation	Optional (email, Department)	Last Active
C:	Medeiros, Norm	Haverford College	nmedeiro@haverford.edu	
C:	Ingram, Matthew C.	SUNY Albany	mingram@albany.edu	

**Table 5: List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.**

- B: Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and  
E: Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.

*to disambiguate common names*

5	Name:	Organizational Affiliation	Journal/Collection	Last Active

The following information regarding collaborators and other affiliations (COA) must be separately provided for each individual identified as senior project personnel. The COA information must be provided through use of this COA template.

Please complete this template (e.g., Excel, Google Sheets, LibreOffice), save as .xlsx or .xls, and upload directly as a Fastlane Collaborators and Other Affiliations single copy doc. Do not upload .pdf.

Please note that some information requested in prior versions of the PAPPG is no longer requested. THIS IS PURPOSEFUL AND WE NO LONGER REQUIRE THIS INFORMATION TO BE REPORTED. Certain relationships will be reported in other sections (i.e., the names of postdoctoral scholar sponsors should not be reported, however if the individual collaborated on research with their postdoctoral scholar sponsor, then they would be reported as a collaborator). The information in the tables is not required to be sorted, alphabetically or otherwise.

There are five separate categories of information which correspond to the five tables in the COA template:

**COA template Table 1:**

List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

**COA template Table 2:**

List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

**COA template Table 3:**

List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

- The individual's Ph.D. advisors; and
- All of the individual's Ph.D. thesis advisees.

**COA template Table 4:**

List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

- Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and
- Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

**COA template Table 5:**

List editorial board, editor-in-chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.

- Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and
- Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.

The template has been developed to be fillable, however, the content and format requirements must not be altered by the user. This template must be saved in .xlsx or .xls format, and directly uploaded into FastLane as a Collaborators and Other Affiliations Single Copy Document. Using the .xlsx or .xls format will enable preservation of searchable text that otherwise would be lost. It is therefore imperative that this document be uploaded in .xlsx or .xls only. Uploading a document in any format other than .xlsx or .xls may delay the timely processing and review of the proposal.

This information is used to manage reviewer selection. See Exhibit II-2 for additional information on potential reviewer conflicts.

**1** Note that graduate advisors are no longer required to be reported.

**2** Editorial Board does not include Editorial Advisory Board, International Advisory Board, Scientific Editorial Board, or any other subcategory of Editorial Board. It is limited to those individuals who perform editing duties or manage the editing process (i.e., editor in chief).

List names as Last Name, First Name, Middle Initial. Additionally, provide email, organization, and department (optional) Fixed column widths keep this sheet one page wide; if you cut and paste text, set font size at 10pt or smaller, and To insert  $n$  blank rows, select  $n$  row numbers to move down, right click, and choose Insert from the menu.

You may fill-down (ctrl-D) to mark a sequence of collaborators, or copy affiliations. Excel has arrows that enable sorting. For "Last Active Date" and "Last Active" columns dates are optional, but will help NSF staff easily determine which information remains relevant for reviewer selection.

"Last Active Date" and "Last Active" columns may be left blank for ongoing or current affiliations.

**Table 1:** List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

1	Your Name:	Your Organizational Affiliation(s), last 12 months	Last Active Date
	Janz, Nicole	University of Nottingham	present position

**Table 2:** List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

R: Additional names for whom some relationship would otherwise preclude their service as a reviewer.

*to disambiguate common names*

2	Name:	Type of Relationship	Optional (email, Department)	Last Active
R:				

**Table 3:** List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following.

G: The individual's Ph.D. advisors; and

T: All of the individual's Ph.D. thesis advisees.

*to disambiguate common names*

3	Advisor/Advisee Name:	Organizational Affiliation	Optional (email, Department)
G:	Gehring, Markus	University of Cambridge	mwg24@cam.ac.uk, Faculty of Law
G:	Sutherland, Alex	University of Cambridge/ RAND	asutherl@rand.org, Criminology
G:	Van Houten, Pieter	University of Cambridge	pjv24@cam.ac.uk, School of Politics and International

**Table 4:** List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

A: Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and

C: Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

*to disambiguate common names*

4	Name:	Organizational Affiliation	Optional (email, Department)	Last Active
A:	Berntsen, Oyvind	Norwegian University of Science and Technology	oyvibern@stud.ntnu.no	4/2/18
C:	Breznau, Nate	University of Bremen	breznau.nate@gmail.com	11/27/2018
C:	Figueiredo, Dalson	Federal University of Recife	dalson.figueiredofo@ufpe.br	11/27/2018
C:	Hoeffler, Jan	University of Goettingen	Jan-H.Hoeffler@wiwi.uni-goettingen.de	11/27/2018
A:	Johnston, Noel P.	UC Riverside	noelj@ucr.edu	11/27/2018
A:	Mahdavi, Paasha	UC Santa Barbara	paasha.mahdavi@gmail.com	11/27/2018
A:	Vadlamannati, Krishna	University College Dublin	krishna.vadlamannati@ucd.ie	11/27/2018

**Table 5: List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.**

B: Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and

E: Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.

*to disambiguate common names*

5	Name:	Organizational Affiliation	Journal/Collection	Last Active
B:				
E:				

The following information regarding collaborators and other affiliations (COA) must be separately provided for each individual identified as senior project personnel. The COA information must be provided through use of this COA template.

Please complete this template (e.g., Excel, Google Sheets, LibreOffice), save as .xlsx or .xls, and upload directly as a Fastlane Collaborators and Other Affiliations single copy doc. Do not upload .pdf.

Please note that some information requested in prior versions of the PAPPG is no longer requested. **THIS IS PURPOSEFUL AND WE NO LONGER REQUIRE THIS INFORMATION TO BE REPORTED.** Certain relationships will be reported in other sections (i.e., the names of postdoctoral scholar sponsors should not be reported, however if the individual collaborated on research with their postdoctoral scholar sponsor, then they would be reported as a collaborator). The information in the tables is not required to be sorted, alphabetically or otherwise.

There are five separate categories of information which correspond to the five tables in the COA template:

**COA template Table 1:**

List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

**COA template Table 2:**

List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

**COA template Table 3:**

List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

- The individual's Ph.D. advisors; and
- All of the individual's Ph.D. thesis advisees.

**COA template Table 4:**

List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

- Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and
- Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

**COA template Table 5:**

List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.

- Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and
- Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.

The template has been developed to be fillable, however, the content and format requirements must not be altered by the user. This template must be saved in .xlsx or .xls format, and directly uploaded into FastLane as a Collaborators and Other Affiliations Single Copy Document. Using the .xlsx or .xls format will enable preservation of searchable text that otherwise would be lost. It is therefore imperative that this document be uploaded in .xlsx or .xls only. Uploading a document in any format other than .xlsx or .xls may delay the timely processing and review of the proposal.

This information is used to manage reviewer selection. See Exhibit II-2 for additional information on potential reviewer conflicts.

1 Note that graduate advisors are no longer required to be reported.

2 Editorial Board does not include Editorial Advisory Board, International Advisory Board, Scientific Editorial Board, or any other subcategory of Editorial Board. It is limited to those individuals who perform editing duties or manage the editing process (i.e., editor in chief).

List names as Last Name, First Name, Middle Initial. Additionally, provide email, organization, and department (optional) Fixed column widths keep this sheet one page wide; if you cut and paste text, set font size at 10pt or smaller, and To insert *n* blank rows, select *n* row numbers to move down, right click, and choose Insert from the menu.

You may fill-down (ctrl-D) to mark a sequence of collaborators, or copy affiliations. Excel has arrows that enable sorting. For "Last Active Date" and "Last Active" columns dates are optional, but will help NSF staff easily determine which information remains relevant for reviewer selection.

"Last Active Date" and "Last Active" columns may be left blank for ongoing or current affiliations.

**Table 1:** List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

1	Your Name:	Your Organizational Affiliation(s), last 12 m	Last Active Date
	Medeiros, Norm	Haverford College	

**Table 2:** List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

R: Additional names for whom some relationship would otherwise preclude their service as a reviewer.

*to disambiguate common names*

2	Name:	Type of Relationship	Optional (email, Department)	Last Active
R:				

**Table 3:** List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following.

G: The individual's Ph.D. advisors; and

T: All of the individual's Ph.D. thesis advisees.

*to disambiguate common names*

3	Advisor/Advisee Name:	Organizational Affiliation	Optional (email, Department)
G:			

T:			

**Table 4: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:**

- A: Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and  
C: Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

*to disambiguate common names*

4	Name:	Organizational Affiliation	Optional (email, Department)	Last Active
A:	Ball, Richard J.	Haverford College		
A:	Hartman-Caverly, Sarah	Delaware County Community College		
A:	McColl, Amy	Swarthmore College		
A:	Persick, Michael	Haverford College		

**Table 5: List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.**

- B: Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and  
E: Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.

*to disambiguate common names*

5	Name:	Organizational Affiliation	Journal/Collection	Last Active
B:				
E:				

Pursuant to PAPPG Chapter II.C.1.e., each PI, co-PI, and other senior project personnel identified on a proposal must provide collaborator and other affiliations information to help NSF identify appropriate reviewers.(v.4/21/2017)

Please complete this template (e.g., Excel, Google Sheets, LibreOffice), save as .xlsx or .xls, and upload directly as a Fastlane Collaborators and Other Affiliations single copy doc.

Do not upload .pdf.

There are five tables:

A: Your Name & Affiliation(s);

B: PhD Advisors/Advisees (all);

C: Collaborators;

D: Co-Editors;

E: Relationships

List names as Last Name, First Name, Middle Initial. Additionally, provide email, organization, and department (optional) to disambiguate common names.

Fixed column widths keep this sheet one page wide; if you cut and paste text, set font size at 10pt or smaller, and abbreviate, where necessary, to make the data fit.

To insert  $n$  blank rows, select  $n$  row numbers to move down, right click, and choose Insert from the menu.

You may fill-down (ctrl-D) to mark a sequence of collaborators, or copy affiliations. Excel has arrows that enable sorting. "Last active" dates are optional, but will help NSF staff easily determine which information remains relevant for reviewer selection.

**Table A:** List your Last Name, First Name, Middle Initial, and organizational affiliation (including considered affiliation) in the last 12 months.

A	Your Name:	Your Organizational Affiliation(s), last 12 m	Last Active Date
	O'Hara, Michael	St. Lawrence University	

**Table B:** List names as Last Name, First Name, Middle Initial, and provide organizational affiliations, if known, for the following.

G: Your PhD Advisor(s)

T: All your PhD Thesis Advisees

P: Your Graduate Advisors

*to disambiguate common names*

B	Advisor/Advisee Name:	Organizational Affiliation	Optional (email, Department)
G:	Khanna, Neha	Binghamton University	
P:	Khumbakar, Subal	Binghamton University	
G:	Boyle, Kevin	Virginia Tech	

**Table C:** List names as Last Name, First Name, Middle Initial, and provide organizational affiliations, if known, for the following.

A: Co-authors on any book, article, report, abstract or paper (with collaboration in last 48 months; publication date may be later).

C: Collaborators on projects, such as funded grants, graduate research or others (in last 48 months).

*to disambiguate common names*

C	Name:	Organizational Affiliation	Optional (email, Department)	Last Active

A:	Sirianni, Philip	State University of New York - Oneonta		
A:	Dvorak, Tomas	Union College		
A:	Swoboda, Aaron	Carleton College		

**Table D: List editorial board, editor-in-chief and co-editors with whom you interact. An editor-in-chief should list the entire editorial board.**

B: Editorial board: Name(s) of editor-in-chief and journal (in past 24 months).

E: Other Co-Editors of journals or collections with whom you directly interacted (in past 24 months).

*to disambiguate common names*

D	Name:	Organizational Affiliation	Journal/Collection	Last Active
B:				
E:				

**Table E: List persons for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.**

R: Additional names for whom some relationship would otherwise preclude their service as a reviewer.

*to disambiguate common names*

D	Name:	Organizational Affiliation	Optional (email, Department)	Last Active
R:				

The following information regarding collaborators and other affiliations (COA) must be separately provided for each individual identified as senior project personnel. The COA information must be provided through use of this COA template.

Please complete this template (e.g., Excel, Google Sheets, LibreOffice), save as .xlsx or .xls, and upload directly as a Fastlane Collaborators and Other Affiliations single copy doc. Do not upload .pdf.

Please note that some information requested in prior versions of the PAPPG is no longer requested. THIS IS PURPOSEFUL AND WE NO LONGER REQUIRE THIS INFORMATION TO BE REPORTED. Certain relationships will be reported in other sections (i.e., the names of postdoctoral scholar sponsors should not be reported, however if the individual collaborated on research with their postdoctoral scholar sponsor, then they would be reported as a collaborator). The information in the tables is not required to be sorted, alphabetically or otherwise.

There are five separate categories of information which correspond to the five tables in the COA template:

**COA template Table 1:**

List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

**COA template Table 2:**

List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

**COA template Table 3:**

List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

- The individual's Ph.D. advisors; and
- All of the individual's Ph.D. thesis advisees.

**COA template Table 4:**

List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

- Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and
- Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

**COA template Table 5:**

List editorial board, editor-in-chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.

- Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and
- Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.

The template has been developed to be fillable, however, the content and format requirements must not be altered by the user. This template must be saved in .xlsx or .xls format, and directly uploaded into FastLane as a Collaborators and Other Affiliations Single Copy Document. Using the .xlsx or .xls format will enable preservation of searchable text that otherwise would be lost. It is therefore imperative that this document be uploaded in .xlsx or .xls only. Uploading a document in any format other than .xlsx or .xls may delay the timely processing and review of the proposal.

This information is used to manage reviewer selection. See Exhibit II-2 for additional information on potential reviewer conflicts.

**1** Note that graduate advisors are no longer required to be reported.

**2** Editorial Board does not include Editorial Advisory Board, International Advisory Board, Scientific Editorial Board, or any other subcategory of Editorial Board. It is limited to those individuals who perform editing duties or manage the editing process (i.e., editor in chief).

List names as Last Name, First Name, Middle Initial. Additionally, provide email, organization, and department  
Fixed column widths keep this sheet one page wide; if you cut and paste text, set font size at 10pt or smaller, and  
To insert  $n$  blank rows, select  $n$  row numbers to move down, right click, and choose Insert from the menu.

You may fill-down (ctrl-D) to mark a sequence of collaborators, or copy affiliations. Excel has arrows that enable  
For "Last Active Date" and "Last Active" columns dates are optional, but will help NSF staff easily determine which  
information remains relevant for reviewer selection.

"Last Active Date" and "Last Active" columns may be left blank for ongoing or current affiliations.

**Table 1:** List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

1	Your Name:	Your Organizational Affiliation(s), last 12	Last Active Date
	Vera, David	California State University, Fresno	

**Table 2:** List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

R: Additional names for whom some relationship would otherwise preclude their service as a reviewer.

*to disambiguate common names*

2	Name:	Type of Relationship	Optional (email, Department)	Last Active

**Table 3:** List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following.

G: The individual's Ph.D. advisors; and

T: All of the individual's Ph.D. thesis advisees.

*to disambiguate common names*

3	Advisor/Advisee Name:	Organizational Affiliation	Optional (email, Department)


**Table 4:** List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

- A: Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and
- C: Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

*to disambiguate common names*

4	Name:	Organizational Affiliation	Optional (email, Department)	Last Active

**Table 5:** List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.

- B: Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and
- E: Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.

*to disambiguate common names*

5	Name:	Organizational Affiliation	Journal/Collection	Last Active

The following information regarding collaborators and other affiliations (COA) must be separately provided for each individual identified as senior project personnel. The COA information must be provided through use of this COA template.

Please complete this template (e.g., Excel, Google Sheets, LibreOffice), save as .xlsx or .xls, and upload directly as a Fastlane Collaborators and Other Affiliations single copy doc. Do not upload .pdf.

Please note that some information requested in prior versions of the PAPPG is no longer requested. **THIS IS PURPOSEFUL AND WE NO LONGER REQUIRE THIS INFORMATION TO BE REPORTED.** Certain relationships will be reported in other sections (i.e., the names of postdoctoral scholar sponsors should not be reported, however if the individual collaborated on research with their postdoctoral scholar sponsor, then they would be reported as a collaborator). The information in the tables is not required to be sorted, alphabetically or otherwise.

There are five separate categories of information which correspond to the five tables in the COA template:

**COA template Table 1:**

List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

**COA template Table 2:**

List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

**COA template Table 3:**

List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

- The individual's Ph.D. advisors; and
- All of the individual's Ph.D. thesis advisees.

**COA template Table 4:**

List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

- Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and
- Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

**COA template Table 5:**

List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.

- Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and
- Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.

The template has been developed to be fillable, however, the content and format requirements must not be altered by the user. This template must be saved in .xlsx or .xls format, and directly uploaded into FastLane as a Collaborators and Other Affiliations Single Copy Document. Using the .xlsx or .xls format will enable preservation of searchable text that otherwise would be lost. It is therefore imperative that this document be uploaded in .xlsx or .xls only. Uploading a document in any format other than .xlsx or .xls may delay the timely processing and review of the proposal.

This information is used to manage reviewer selection. See Exhibit II-2 for additional information on potential reviewer conflicts.

1 Note that graduate advisors are no longer required to be reported.

2 Editorial Board does not include Editorial Advisory Board, International Advisory Board, Scientific Editorial Board, or any other subcategory of Editorial Board. It is limited to those individuals who perform editing duties or manage the editing process (i.e., editor in chief).

List names as Last Name, First Name, Middle Initial. Additionally, provide email, organization, and department (optional) Fixed column widths keep this sheet one page wide; if you cut and paste text, set font size at 10pt or smaller, and To insert *n* blank rows, select *n* row numbers to move down, right click, and choose Insert from the menu.

You may fill-down (ctrl-D) to mark a sequence of collaborators, or copy affiliations. Excel has arrows that enable sorting. For "Last Active Date" and "Last Active" columns dates are optional, but will help NSF staff easily determine which information remains relevant for reviewer selection.

"Last Active Date" and "Last Active" columns may be left blank for ongoing or current affiliations.

**Table 1:** List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

1	Your Name:	Your Organizational Affiliation(s), last 12 r	Last Active Date
	Simon D. Halliday	Smith College	Present Position

**Table 2:** List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

R: Additional names for whom some relationship would otherwise preclude their service as a reviewer.

*to disambiguate common names*

2	Name:	Type of Relationship	Optional (email, Department)	Last Active
R:				

**Table 3:** List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following.

G: The individual's Ph.D. advisors; and

T: All of the individual's Ph.D. thesis advisees.

*to disambiguate common names*

3	Advisor/Advisee Name:	Organizational Affiliation	Optional (email, Department)
G:	Alessandro Innocenti	University of Siena	Economics Department

G:	Bernd Irlenbusch	University of Cologne	Faculty of Economics, Management, and Social Science
G:	Marco Casari	University of Bologna	Department of Economics
T:	Abdul Haleem Kidwai	U Massachusetts, Amherst	Resource Economics (PhD Candidate)

**Table 4: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:**

- A: Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and  
C: Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

*to disambiguate common names*

4	Name:	Organizational Affiliation	Optional (email, Department)	Last Active
A:	Samuel Bowles	Santa Fe Institute	Behavioral Sciences	12/8/18
A:	Michael O'Hara	St. Lawrence University	Economics Department	12/8/18
A:	Tomas Dvorak	Union College	Economics Department	12/8/18
A:	Aaron Swoboda	Carleton College	Economics Department	12/8/18
A:	Jonathan Lafky	Carleton College	Economics Department	9/26/18
A:	Alistair Willson	University of Pittsburgh	Economics Department	9/26/18
A:	Fabio Landini	University of Parma	Department of Economics and Management	12/7/18
A:	Gabriel Burdin	University of Leeds	Business School	12/7/18
A:	Roger Kaufman	Smith College	Economics Department	12/3/18
A:	Duncan K Foley	New School for Social Research	Economics Department	10/31/18
A:	Louise Yu	Smith College (Alumna)	Economics Department	8/2/17
A:	Justine Burns	University of Cape Town	Economics Department	6/23/18
A:	Malcolm Keswell	Universti of Cape Town	Economics Department	6/23/18
A:	Daniele Tavani	U. Mass Amherst	Economics Department	12/5/18
A:	Sai Madhurika Mamunuru	U. Mass Amherst	Economics Department	12/5/18

**Table 5: List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.**

- B: Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and  
E: Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.

*to disambiguate common names*

5	Name:	Organizational Affiliation	Journal/Collection	Last Active
B:	KimMarie McGoldrick	Richmond University	Journal of Economic Education, Southern Economic Journal	11/18/18
B:	Gail Hoyt	University of Kentucky	Journal of Economic Education	11/1/18
B:	Yan Lin	MDPI	Games	7/4/18
B:	Gerlinde Fellner-Rohling	University of Ulm	Journal of Economic Psychology	12/8/16
B:	Jeffrey Carpenter	Middlebury College	Journal of Behavioral and Experimental Economics	

**Table 1:** List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

1	Your Name:	Your Organizational Affiliation(s), last 12 months	Last Active Date
	Ingram, Matthew C.	University at Albany, SUNY	present

**Table 2:** List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

R: Additional names for whom some relationship would otherwise preclude their service as a reviewer.

*to disambiguate common names*

2	Name:	Type of Relationship	Optional (email, Department)	Last Active
R:				

**Table 3:** List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following.

G: The individual's Ph.D. advisors; and

T: All of the individual's Ph.D. thesis advisees.

*to disambiguate common names*

3	Advisor/Advisee Name:	Organizational Affiliation	Optional (email, Department)
G:	Stanley, William	University of New Mexico	
G:	Roberts, Kenneth M.	Cornell University	
T:	Marcelo Marchesini	Insper (Sao Paulo, Brazil)	

**Table 4:** List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

A: Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and

C: Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

*to disambiguate common names*

4	Name:	Organizational Affiliation	Optional (email, Department)	Last Active
A:	Harbers, Imke	University of Amsterdam		ongoing
A:	Kapiszewski, Diana	Georgetown University		ongoing
A:	Hilbink, Lisa	University of Minnesota		ongoing
A:	Da Ros, Luciano	Federal University of Rio Grande do Sul (Brazil)		ongoing
A:	Desposato, Scott	University of California, San Diego		ongoing
A:	Burghardt, Keith	University of California, Davis		8/1/16
A:	Hasne, Marie-Pierre	Oregon Health and Science University		8/1/16
A:	Huang, Junming	Northeastern University		8/1/16

A:	Song, Binyang	Singapore University of Technology and Design	8/1/16
A:	Verzijl, Christopher	ABN AMRO Bank	8/1/16
C:	Ball, Richard	Haverford College	ongoing

**Table 5: List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief**

**B: Editorial Board:** List name(s) of editor-in-chief and journal in the past 24 months; and

**E: Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.**

*to disambiguate common names*

5	Name:	Organizational Affiliation	Journal/Collection	Last Active
B:	Zick, Andreas	Bielefeld University	International Journal of Conflict and	ongoing
E:	Salentin, Kurt	Bielefeld University	International Journal of Conflict and Violence	
E:	Messner, Steven F.	University at Albany, SUNY	International Journal of Conflict and Violence	

## COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./DUE DATE <b>NSF 17-590</b> <b>12/11/18</b>		<input type="checkbox"/> Special Exception to Deadline Date Policy			FOR NSF USE ONLY
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.) <b>DUE - IUSE-Developmen &amp; Implem Institut &amp; Comm Transform</b>					<b>NSF PROPOSAL NUMBER</b> <b>1915629</b>
DATE RECEIVED <b>12/11/2018</b>	NUMBER OF COPIES <b>1</b>	DIVISION ASSIGNED <b>11040000 DUE</b>	FUND CODE <b>1998</b>	DUNS# (Data Universal Numbering System) <b>002502615</b>	FILE LOCATION <b>12/12/2018 10:36am S</b>
EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN) <b>236002304</b>		SHOW PREVIOUS AWARD NO. IF THIS IS <input type="checkbox"/> A RENEWAL <input type="checkbox"/> AN ACCOMPLISHMENT-BASED RENEWAL		IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> IF YES, LIST ACRONYM(S)	
NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE <b>Haverford College</b>		ADDRESS OF Awardee ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE <b>Haverford College 370 Lancaster Avenue Haverford, PA. 190411336</b>			
AWARDEE ORGANIZATION CODE (IF KNOWN) <b>0032748000</b>					
NAME OF PRIMARY PLACE OF PERF <b>Haverford College</b>		ADDRESS OF PRIMARY PLACE OF PERF, INCLUDING 9 DIGIT ZIP CODE <b>Haverford College PA ,190411336 ,US.</b>			
IS Awardee ORGANIZATION (Check All That Apply)		<input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> FOR-PROFIT ORGANIZATION		<input type="checkbox"/> MINORITY BUSINESS <input type="checkbox"/> WOMAN-OWNED BUSINESS	
				<input type="checkbox"/> IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE	
TITLE OF PROPOSED PROJECT <b>Collaborative Research: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional Norms</b>					
REQUESTED AMOUNT <b>\$ 2,000,523</b>	PROPOSED DURATION (1-60 MONTHS) <b>48 months</b>	REQUESTED STARTING DATE <b>07/01/20</b>	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE		
THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW		<input checked="" type="checkbox"/> HUMAN SUBJECTS Human Subjects Assurance Number <b>FWA00005551</b> <input type="checkbox"/> Exemption Subsection _____ or IRB App. Date <b>Pending</b> <input checked="" type="checkbox"/> INTERNATIONAL ACTIVITIES: COUNTRY/COUNTRIES INVOLVED <b>UK</b> <input checked="" type="checkbox"/> COLLABORATIVE STATUS <b>A collaborative proposal from multiple organizations (PAPPG II.D.3.b)</b>			
PI/PD DEPARTMENT <b>Department of Economics</b>		PI/PD POSTAL ADDRESS <b>370 Lancaster Avenue</b>			
PI/PD FAX NUMBER <b>610-896-1240</b>		Haverford, PA 190411392 United States			
NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Email Address	
PI/PD NAME <b>Richard J Ball</b>	<b>UKNW</b>	<b>1993</b>	<b>610-896-1437</b>	<b>rball@haverford.edu</b>	
CO-PI/PD <b>Nicole Janz</b>	<b>DSSc</b>	<b>2015</b>	<b>610-896-1437</b>	<b>nicoletanz@gmail.com</b>	
CO-PI/PD <b>Norm Medeiros</b>	<b>MLS</b>	<b>1994</b>	<b>610-896-1173</b>	<b>nmedeiro@haverford.edu</b>	
CO-PI/PD					
CO-PI/PD					

## CERTIFICATION PAGE

### **Certification for Authorized Organizational Representative (or Equivalent) or Individual Applicant**

By electronically signing and submitting this proposal, the Authorized Organizational Representative (AOR) or Individual Applicant is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding conflict of interest (when applicable), drug-free workplace, debarment and suspension, lobbying activities (see below), nondiscrimination, flood hazard insurance (when applicable), responsible conduct of research, organizational support, Federal tax obligations, unpaid Federal tax liability, and criminal convictions as set forth in the NSF Proposal & Award Policies & Procedures Guide (PAPPG). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U.S. Code, Title 18, Section 1001).

#### **Certification Regarding Conflict of Interest**

The AOR is required to complete certifications stating that the organization has implemented and is enforcing a written policy on conflicts of interest (COI), consistent with the provisions of PAPPG Chapter IX.A.; that, to the best of his/her knowledge, all financial disclosures required by the conflict of interest policy were made; and that conflicts of interest, if any, were, or prior to the organization's expenditure of any funds under the award, will be, satisfactorily managed, reduced or eliminated in accordance with the organization's conflict of interest policy. Conflicts that cannot be satisfactorily managed, reduced or eliminated and research that proceeds without the imposition of conditions or restrictions when a conflict of interest exists, must be disclosed to NSF via use of the Notifications and Requests Module in FastLane.

#### **Drug Free Work Place Certification**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent), is providing the Drug Free Work Place Certification contained in Exhibit II-3 of the Proposal & Award Policies & Procedures Guide.

#### **Debarment and Suspension Certification**

(If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency?

Yes

No

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant is providing the Debarment and Suspension Certification contained in Exhibit II-4 of the Proposal & Award Policies & Procedures Guide.

#### **Certification Regarding Lobbying**

This certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding \$100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000.

#### **Certification for Contracts, Grants, Loans and Cooperative Agreements**

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

#### **Certification Regarding Nondiscrimination**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is providing the Certification Regarding Nondiscrimination contained in Exhibit II-6 of the Proposal & Award Policies & Procedures Guide.

#### **Certification Regarding Flood Hazard Insurance**

Two sections of the National Flood Insurance Act of 1968 (42 USC §4012a and §4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:

- (1) community in which that area is located participates in the national flood insurance program; and
- (2) building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:

- (1) for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
- (2) for other NSF grants when more than \$25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

#### **Certification Regarding Responsible Conduct of Research (RCR)**

**(This certification is not applicable to proposals for conferences, symposia, and workshops.)**

By electronically signing the Certification Pages, the Authorized Organizational Representative is certifying that, in accordance with the NSF Proposal & Award Policies & Procedures Guide, Chapter IX.B., the institution has a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students and postdoctoral researchers who will be supported by NSF to conduct research. The AOR shall require that the language of this certification be included in any award documents for all subawards at all tiers.

## CERTIFICATION PAGE - CONTINUED

### **Certification Regarding Organizational Support**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that there is organizational support for the proposal as required by Section 526 of the America COMPETES Reauthorization Act of 2010. This support extends to the portion of the proposal developed to satisfy the Broader Impacts Review Criterion as well as the Intellectual Merit Review Criterion, and any additional review criteria specified in the solicitation. Organizational support will be made available, as described in the proposal, in order to address the broader impacts and intellectual merit activities to be undertaken.

### **Certification Regarding Federal Tax Obligations**

When the proposal exceeds \$5,000,000, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal tax obligations. By electronically signing the Certification pages, the Authorized Organizational Representative is certifying that, to the best of their knowledge and belief, the proposing organization:

- (1) has filed all Federal tax returns required during the three years preceding this certification;
- (2) has not been convicted of a criminal offense under the Internal Revenue Code of 1986; and
- (3) has not, more than 90 days prior to this certification, been notified of any unpaid Federal tax assessment for which the liability remains unsatisfied, unless the assessment is the subject of an installment agreement or offer in compromise that has been approved by the Internal Revenue Service and is not in default, or the assessment is the subject of a non-frivolous administrative or judicial proceeding.

### **Certification Regarding Unpaid Federal Tax Liability**

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal Tax Liability:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has no unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

### **Certification Regarding Criminal Convictions**

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Criminal Convictions:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has not been convicted of a felony criminal violation under any Federal law within the 24 months preceding the date on which the certification is signed.

### **Certification Dual Use Research of Concern**

By electronically signing the certification pages, the Authorized Organizational Representative is certifying that the organization will be or is in compliance with all aspects of the United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	SIGNATURE	DATE
NAME <b>Frances Rose Blase</b>	Electronic Signature	Dec 11 2018 4:56PM
TELEPHONE NUMBER	EMAIL ADDRESS	FAX NUMBER
<b>610-896-1216</b>	<b>fblase@haverford.edu</b>	<b>610-896-4963</b>

## COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./DUE DATE <b>NSF 17-590</b> <b>12/11/18</b>		<input type="checkbox"/> Special Exception to Deadline Date Policy			FOR NSF USE ONLY
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.) <b>DUE - IUSE-Developmen &amp; Implem Institut &amp; Comm Transform</b>					<b>NSF PROPOSAL NUMBER</b> <b>1915295</b>
DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)	FILE LOCATION
<b>12/11/2018</b>	<b>1</b>	<b>11040000 DUE</b>	<b>1998</b>	<b>002255792</b>	<b>12/12/2018 10:36am S</b>
EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN) <b>150532239</b>		SHOW PREVIOUS AWARD NO. IF THIS IS <input type="checkbox"/> A RENEWAL <input type="checkbox"/> AN ACCOMPLISHMENT-BASED RENEWAL		IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> IF YES, LIST ACRONYM(S)	
NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE <b>Saint Lawrence University</b>			ADDRESS OF AWARDEE ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE <b>Saint Lawrence University</b> <b>23 Romoda Drive</b> <b>Canton, NY. 136170000</b>		
AWARDEE ORGANIZATION CODE (IF KNOWN) <b>0028290000</b>			ADDRESS OF PRIMARY PLACE OF PERF, INCLUDING 9 DIGIT ZIP CODE <b>Saint Lawrence University</b> <b>23 Romoda Dr</b> <b>Canton ,NY ,136171423 ,US.</b>		
IS AWARDEE ORGANIZATION (Check All That Apply)		<input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> MINORITY BUSINESS <input type="checkbox"/> FOR-PROFIT ORGANIZATION <input type="checkbox"/> WOMAN-OWNED BUSINESS		<input type="checkbox"/> IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE	
TITLE OF PROPOSED PROJECT <b>Collaborative Research: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional Norms</b>					
REQUESTED AMOUNT <b>\$ 221,179</b>	PROPOSED DURATION (1-60 MONTHS) <b>48</b> months		REQUESTED STARTING DATE <b>07/01/20</b>	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE	
THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW					
<input type="checkbox"/> BEGINNING INVESTIGATOR <input type="checkbox"/> DISCLOSURE OF LOBBYING ACTIVITIES <input type="checkbox"/> PROPRIETARY & PRIVILEGED INFORMATION <input type="checkbox"/> HISTORIC PLACES <input type="checkbox"/> VERTEBRATE ANIMALS IACUC App. Date _____ PHS Animal Welfare Assurance Number _____					
<input type="checkbox"/> HUMAN SUBJECTS                          Human Subjects Assurance Number _____ Exemption Subsection _____ or IRB App. Date _____					
<input type="checkbox"/> INTERNATIONAL ACTIVITIES: COUNTRY/COUNTRIES INVOLVED _____					
<input checked="" type="checkbox"/> COLLABORATIVE STATUS <b>A collaborative proposal from multiple organizations (PAPPG II.D.3.b)</b>					
PI/PD DEPARTMENT <b>Economics</b>		PI/PD POSTAL ADDRESS <b>23 Romoda Dr</b>			
PI/PD FAX NUMBER		<b>Canton, NY 13617 United States</b>			
NAMES (TYPED)		High Degree	Yr of Degree	Telephone Number	Email Address
<b>Michael E OHara</b>		<b>DPhil</b>	<b>2007</b>	<b>315-229-1887</b>	<b>mohara@stlawu.edu</b>
CO-PI/PD					

## CERTIFICATION PAGE

### **Certification for Authorized Organizational Representative (or Equivalent) or Individual Applicant**

By electronically signing and submitting this proposal, the Authorized Organizational Representative (AOR) or Individual Applicant is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding conflict of interest (when applicable), drug-free workplace, debarment and suspension, lobbying activities (see below), nondiscrimination, flood hazard insurance (when applicable), responsible conduct of research, organizational support, Federal tax obligations, unpaid Federal tax liability, and criminal convictions as set forth in the NSF Proposal & Award Policies & Procedures Guide (PAPPG). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U.S. Code, Title 18, Section 1001).

#### **Certification Regarding Conflict of Interest**

The AOR is required to complete certifications stating that the organization has implemented and is enforcing a written policy on conflicts of interest (COI), consistent with the provisions of PAPPG Chapter IX.A.; that, to the best of his/her knowledge, all financial disclosures required by the conflict of interest policy were made; and that conflicts of interest, if any, were, or prior to the organization's expenditure of any funds under the award, will be, satisfactorily managed, reduced or eliminated in accordance with the organization's conflict of interest policy. Conflicts that cannot be satisfactorily managed, reduced or eliminated and research that proceeds without the imposition of conditions or restrictions when a conflict of interest exists, must be disclosed to NSF via use of the Notifications and Requests Module in FastLane.

#### **Drug Free Work Place Certification**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent), is providing the Drug Free Work Place Certification contained in Exhibit II-3 of the Proposal & Award Policies & Procedures Guide.

#### **Debarment and Suspension Certification**

(If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency?

Yes

No

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant is providing the Debarment and Suspension Certification contained in Exhibit II-4 of the Proposal & Award Policies & Procedures Guide.

#### **Certification Regarding Lobbying**

This certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding \$100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000.

#### **Certification for Contracts, Grants, Loans and Cooperative Agreements**

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

#### **Certification Regarding Nondiscrimination**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is providing the Certification Regarding Nondiscrimination contained in Exhibit II-6 of the Proposal & Award Policies & Procedures Guide.

#### **Certification Regarding Flood Hazard Insurance**

Two sections of the National Flood Insurance Act of 1968 (42 USC §4012a and §4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:

- (1) community in which that area is located participates in the national flood insurance program; and
- (2) building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:

- (1) for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
- (2) for other NSF grants when more than \$25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

#### **Certification Regarding Responsible Conduct of Research (RCR)**

**(This certification is not applicable to proposals for conferences, symposia, and workshops.)**

By electronically signing the Certification Pages, the Authorized Organizational Representative is certifying that, in accordance with the NSF Proposal & Award Policies & Procedures Guide, Chapter IX.B., the institution has a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students and postdoctoral researchers who will be supported by NSF to conduct research. The AOR shall require that the language of this certification be included in any award documents for all subawards at all tiers.

## CERTIFICATION PAGE - CONTINUED

### **Certification Regarding Organizational Support**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that there is organizational support for the proposal as required by Section 526 of the America COMPETES Reauthorization Act of 2010. This support extends to the portion of the proposal developed to satisfy the Broader Impacts Review Criterion as well as the Intellectual Merit Review Criterion, and any additional review criteria specified in the solicitation. Organizational support will be made available, as described in the proposal, in order to address the broader impacts and intellectual merit activities to be undertaken.

### **Certification Regarding Federal Tax Obligations**

When the proposal exceeds \$5,000,000, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal tax obligations. By electronically signing the Certification pages, the Authorized Organizational Representative is certifying that, to the best of their knowledge and belief, the proposing organization:

- (1) has filed all Federal tax returns required during the three years preceding this certification;
- (2) has not been convicted of a criminal offense under the Internal Revenue Code of 1986; and
- (3) has not, more than 90 days prior to this certification, been notified of any unpaid Federal tax assessment for which the liability remains unsatisfied, unless the assessment is the subject of an installment agreement or offer in compromise that has been approved by the Internal Revenue Service and is not in default, or the assessment is the subject of a non-frivolous administrative or judicial proceeding.

### **Certification Regarding Unpaid Federal Tax Liability**

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal Tax Liability:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has no unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

### **Certification Regarding Criminal Convictions**

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Criminal Convictions:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has not been convicted of a felony criminal violation under any Federal law within the 24 months preceding the date on which the certification is signed.

### **Certification Dual Use Research of Concern**

By electronically signing the certification pages, the Authorized Organizational Representative is certifying that the organization will be or is in compliance with all aspects of the United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	SIGNATURE	DATE
NAME <b>Elizabeth Haney</b>	Electronic Signature	Dec 11 2018 1:53PM
TELEPHONE NUMBER	EMAIL ADDRESS	FAX NUMBER
<b>315-229-1885</b>	<b>ehaney@stlawu.edu</b>	<b>315-229-5620</b>

## COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./DUE DATE <b>NSF 17-590</b> <b>12/11/18</b>		<input type="checkbox"/> Special Exception to Deadline Date Policy			FOR NSF USE ONLY
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.) <b>DUE - IUSE-Developmen &amp; Implem Institut &amp; Comm Transform</b>					<b>NSF PROPOSAL NUMBER</b> <b>1915311</b>
DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)	FILE LOCATION
<b>12/11/2018</b>	<b>1</b>	<b>11040000 DUE</b>	<b>1998</b>	<b>150837003</b>	<b>12/12/2018 10:37am S</b>
EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN) <b>946003272</b>		SHOW PREVIOUS AWARD NO. IF THIS IS <input type="checkbox"/> A RENEWAL <input type="checkbox"/> AN ACCOMPLISHMENT-BASED RENEWAL		IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> IF YES, LIST ACRONYM(S)	
NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE <b>California State University-Fresno Foundation</b>			ADDRESS OF Awardee ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE <b>California State University-Fresno Foundation</b> <b>5241 N. Maple Ave</b> <b>Fresno, CA 937400001</b>		
AWARDEE ORGANIZATION CODE (IF KNOWN) <b>0011478001</b>					
NAME OF PRIMARY PLACE OF PERF <b>California State University, Fresno Foundation</b>			ADDRESS OF PRIMARY PLACE OF PERF, INCLUDING 9 DIGIT ZIP CODE <b>California State University, Fresno Foundation</b> <b>4910 N. Chestnut Ave.</b> <b>Fresno ,CA ,937261852 ,US.</b>		
IS Awardee ORGANIZATION (Check All That Apply)		<input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> FOR-PROFIT ORGANIZATION		<input type="checkbox"/> MINORITY BUSINESS <input type="checkbox"/> WOMAN-OWNED BUSINESS <input type="checkbox"/> IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE	
TITLE OF PROPOSED PROJECT <b>Collaborative Research: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional Norms</b>					
REQUESTED AMOUNT <b>\$ 168,532</b>	PROPOSED DURATION (1-60 MONTHS) <b>48</b> months		REQUESTED STARTING DATE <b>07/01/20</b>	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE	
THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW					
<input type="checkbox"/> BEGINNING INVESTIGATOR <input type="checkbox"/> DISCLOSURE OF LOBBYING ACTIVITIES <input type="checkbox"/> PROPRIETARY & PRIVILEGED INFORMATION <input type="checkbox"/> HISTORIC PLACES <input type="checkbox"/> VERTEBRATE ANIMALS IACUC App. Date _____ PHS Animal Welfare Assurance Number _____ <input checked="" type="checkbox"/> TYPE OF PROPOSAL <b>Research</b>					
PI/PD DEPARTMENT <b>Economics</b>		PI/PD POSTAL ADDRESS <b>4910 N. Chestnut Ave</b>			
PI/PD FAX NUMBER <b>559-278-3916</b>		Fresno, CA 937261852 United States			
NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Email Address	
PI/PD NAME <b>David Vera</b>	<b>PhD</b>	<b>2006</b>	<b>559-278-4935</b>	<b>dvera@csufresno.edu</b>	
CO-PI/PD					

## CERTIFICATION PAGE

### **Certification for Authorized Organizational Representative (or Equivalent) or Individual Applicant**

By electronically signing and submitting this proposal, the Authorized Organizational Representative (AOR) or Individual Applicant is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding conflict of interest (when applicable), drug-free workplace, debarment and suspension, lobbying activities (see below), nondiscrimination, flood hazard insurance (when applicable), responsible conduct of research, organizational support, Federal tax obligations, unpaid Federal tax liability, and criminal convictions as set forth in the NSF Proposal & Award Policies & Procedures Guide (PAPPG). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U.S. Code, Title 18, Section 1001).

#### **Certification Regarding Conflict of Interest**

The AOR is required to complete certifications stating that the organization has implemented and is enforcing a written policy on conflicts of interest (COI), consistent with the provisions of PAPPG Chapter IX.A.; that, to the best of his/her knowledge, all financial disclosures required by the conflict of interest policy were made; and that conflicts of interest, if any, were, or prior to the organization's expenditure of any funds under the award, will be, satisfactorily managed, reduced or eliminated in accordance with the organization's conflict of interest policy. Conflicts that cannot be satisfactorily managed, reduced or eliminated and research that proceeds without the imposition of conditions or restrictions when a conflict of interest exists, must be disclosed to NSF via use of the Notifications and Requests Module in FastLane.

#### **Drug Free Work Place Certification**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent), is providing the Drug Free Work Place Certification contained in Exhibit II-3 of the Proposal & Award Policies & Procedures Guide.

#### **Debarment and Suspension Certification**

(If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency?

Yes

No

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant is providing the Debarment and Suspension Certification contained in Exhibit II-4 of the Proposal & Award Policies & Procedures Guide.

#### **Certification Regarding Lobbying**

This certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding \$100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000.

#### **Certification for Contracts, Grants, Loans and Cooperative Agreements**

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

#### **Certification Regarding Nondiscrimination**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is providing the Certification Regarding Nondiscrimination contained in Exhibit II-6 of the Proposal & Award Policies & Procedures Guide.

#### **Certification Regarding Flood Hazard Insurance**

Two sections of the National Flood Insurance Act of 1968 (42 USC §4012a and §4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:

- (1) community in which that area is located participates in the national flood insurance program; and
- (2) building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:

- (1) for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
- (2) for other NSF grants when more than \$25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

#### **Certification Regarding Responsible Conduct of Research (RCR)**

**(This certification is not applicable to proposals for conferences, symposia, and workshops.)**

By electronically signing the Certification Pages, the Authorized Organizational Representative is certifying that, in accordance with the NSF Proposal & Award Policies & Procedures Guide, Chapter IX.B., the institution has a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students and postdoctoral researchers who will be supported by NSF to conduct research. The AOR shall require that the language of this certification be included in any award documents for all subawards at all tiers.

## CERTIFICATION PAGE - CONTINUED

### **Certification Regarding Organizational Support**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that there is organizational support for the proposal as required by Section 526 of the America COMPETES Reauthorization Act of 2010. This support extends to the portion of the proposal developed to satisfy the Broader Impacts Review Criterion as well as the Intellectual Merit Review Criterion, and any additional review criteria specified in the solicitation. Organizational support will be made available, as described in the proposal, in order to address the broader impacts and intellectual merit activities to be undertaken.

### **Certification Regarding Federal Tax Obligations**

When the proposal exceeds \$5,000,000, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal tax obligations. By electronically signing the Certification pages, the Authorized Organizational Representative is certifying that, to the best of their knowledge and belief, the proposing organization:

- (1) has filed all Federal tax returns required during the three years preceding this certification;
- (2) has not been convicted of a criminal offense under the Internal Revenue Code of 1986; and
- (3) has not, more than 90 days prior to this certification, been notified of any unpaid Federal tax assessment for which the liability remains unsatisfied, unless the assessment is the subject of an installment agreement or offer in compromise that has been approved by the Internal Revenue Service and is not in default, or the assessment is the subject of a non-frivolous administrative or judicial proceeding.

### **Certification Regarding Unpaid Federal Tax Liability**

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal Tax Liability:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has no unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

### **Certification Regarding Criminal Convictions**

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Criminal Convictions:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has not been convicted of a felony criminal violation under any Federal law within the 24 months preceding the date on which the certification is signed.

### **Certification Dual Use Research of Concern**

By electronically signing the certification pages, the Authorized Organizational Representative is certifying that the organization will be or is in compliance with all aspects of the United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	SIGNATURE	DATE
NAME <b>James Marshall</b>	<b>Electronic Signature</b>	<b>Dec 11 2018 2:09PM</b>
TELEPHONE NUMBER	EMAIL ADDRESS	FAX NUMBER
<b>559-278-0840</b>	<b>orsp@csufresno.edu</b>	<b>559-278-0992</b>

## **COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION**

PROGRAM ANNOUNCEMENT/SOLICITATION NO./DUE DATE <b>NSF 17-590</b> <b>12/11/18</b>		<input type="checkbox"/> Special Exception to Deadline Date Policy			FOR NSF USE ONLY
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.) <b>DUE - IUSE-Exploration &amp; Desig: Institut &amp; Comm Transfor</b>					<b>NSF PROPOSAL NUMBER</b> <b>1915222</b>
DATE RECEIVED <b>12/11/2018</b>	NUMBER OF COPIES <b>1</b>	DIVISION ASSIGNED <b>11040000 DUE</b>	FUND CODE <b>1998</b>	DUNS# (Data Universal Numbering System) <b>066989427</b>	FILE LOCATION <b>12/12/2018 10:37am S</b>
EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN) <b>041843040</b>		SHOW PREVIOUS AWARD NO. IF THIS IS <input type="checkbox"/> A RENEWAL <input type="checkbox"/> AN ACCOMPLISHMENT-BASED RENEWAL		IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> IF YES, LIST ACRONYM(S)	
NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE <b>Smith College</b>		ADDRESS OF AWARDEE ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE <b>Smith College 10 ELM STREET Northampton, MA. 010636304</b>			
AWARDEE ORGANIZATION CODE (IF KNOWN) <b>0022095000</b>					
NAME OF PRIMARY PLACE OF PERF <b>Smith College</b>		ADDRESS OF PRIMARY PLACE OF PERF, INCLUDING 9 DIGIT ZIP CODE <b>Smith College 10 Elm Street Northampton ,MA ,010636304 ,US.</b>			
IS AWARDEE ORGANIZATION (Check All That Apply)		<input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> FOR-PROFIT ORGANIZATION	<input type="checkbox"/> MINORITY BUSINESS <input type="checkbox"/> WOMAN-OWNED BUSINESS	<input type="checkbox"/> IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE	
TITLE OF PROPOSED PROJECT <b>Collaborative Research: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional Norms</b>					
REQUESTED AMOUNT <b>\$ 177,259</b>	PROPOSED DURATION (1-60 MONTHS) <b>48 months</b>	REQUESTED STARTING DATE <b>07/01/20</b>	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE		
THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW					
<input type="checkbox"/> BEGINNING INVESTIGATOR		<input type="checkbox"/> HUMAN SUBJECTS Human Subjects Assurance Number _____			
<input type="checkbox"/> DISCLOSURE OF LOBBYING ACTIVITIES		<input type="checkbox"/> Exemption Subsection _____ or IRB App. Date _____			
<input type="checkbox"/> PROPRIETARY & PRIVILEGED INFORMATION		<input type="checkbox"/> INTERNATIONAL ACTIVITIES: COUNTRY/COUNTRIES INVOLVED _____			
<input type="checkbox"/> HISTORIC PLACES		<input type="checkbox"/> COLLABORATIVE STATUS _____			
<input type="checkbox"/> VERTEBRATE ANIMALS IACUC App. Date _____ PHS Animal Welfare Assurance Number _____		<input checked="" type="checkbox"/> A collaborative proposal from multiple organizations (PAPPG II.D.3.)			
PI/PD DEPARTMENT <b>Economics</b>		PI/PD POSTAL ADDRESS <b>Wright Hall 234</b>			
PI/PD FAX NUMBER		<b>Northampton, MA 01063 United States</b>			
NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Email Address	
PI/PD NAME <b>Simon D Halliday</b>	<b>DEcon</b>	<b>2013</b>	<b>413-585-3529</b>	<b>shalliday@smith.edu</b>	
CO-PI/PD					

## CERTIFICATION PAGE

### **Certification for Authorized Organizational Representative (or Equivalent) or Individual Applicant**

By electronically signing and submitting this proposal, the Authorized Organizational Representative (AOR) or Individual Applicant is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding conflict of interest (when applicable), drug-free workplace, debarment and suspension, lobbying activities (see below), nondiscrimination, flood hazard insurance (when applicable), responsible conduct of research, organizational support, Federal tax obligations, unpaid Federal tax liability, and criminal convictions as set forth in the NSF Proposal & Award Policies & Procedures Guide (PAPPG). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U.S. Code, Title 18, Section 1001).

#### **Certification Regarding Conflict of Interest**

The AOR is required to complete certifications stating that the organization has implemented and is enforcing a written policy on conflicts of interest (COI), consistent with the provisions of PAPPG Chapter IX.A.; that, to the best of his/her knowledge, all financial disclosures required by the conflict of interest policy were made; and that conflicts of interest, if any, were, or prior to the organization's expenditure of any funds under the award, will be, satisfactorily managed, reduced or eliminated in accordance with the organization's conflict of interest policy. Conflicts that cannot be satisfactorily managed, reduced or eliminated and research that proceeds without the imposition of conditions or restrictions when a conflict of interest exists, must be disclosed to NSF via use of the Notifications and Requests Module in FastLane.

#### **Drug Free Work Place Certification**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent), is providing the Drug Free Work Place Certification contained in Exhibit II-3 of the Proposal & Award Policies & Procedures Guide.

#### **Debarment and Suspension Certification**

(If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency?

Yes

No

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant is providing the Debarment and Suspension Certification contained in Exhibit II-4 of the Proposal & Award Policies & Procedures Guide.

#### **Certification Regarding Lobbying**

This certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding \$100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000.

#### **Certification for Contracts, Grants, Loans and Cooperative Agreements**

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

#### **Certification Regarding Nondiscrimination**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is providing the Certification Regarding Nondiscrimination contained in Exhibit II-6 of the Proposal & Award Policies & Procedures Guide.

#### **Certification Regarding Flood Hazard Insurance**

Two sections of the National Flood Insurance Act of 1968 (42 USC §4012a and §4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:

- (1) community in which that area is located participates in the national flood insurance program; and
- (2) building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:

- (1) for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
- (2) for other NSF grants when more than \$25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

#### **Certification Regarding Responsible Conduct of Research (RCR)**

**(This certification is not applicable to proposals for conferences, symposia, and workshops.)**

By electronically signing the Certification Pages, the Authorized Organizational Representative is certifying that, in accordance with the NSF Proposal & Award Policies & Procedures Guide, Chapter IX.B., the institution has a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students and postdoctoral researchers who will be supported by NSF to conduct research. The AOR shall require that the language of this certification be included in any award documents for all subawards at all tiers.

## CERTIFICATION PAGE - CONTINUED

### **Certification Regarding Organizational Support**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that there is organizational support for the proposal as required by Section 526 of the America COMPETES Reauthorization Act of 2010. This support extends to the portion of the proposal developed to satisfy the Broader Impacts Review Criterion as well as the Intellectual Merit Review Criterion, and any additional review criteria specified in the solicitation. Organizational support will be made available, as described in the proposal, in order to address the broader impacts and intellectual merit activities to be undertaken.

### **Certification Regarding Federal Tax Obligations**

When the proposal exceeds \$5,000,000, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal tax obligations.

By electronically signing the Certification pages, the Authorized Organizational Representative is certifying that, to the best of their knowledge and belief, the proposing organization:

- (1) has filed all Federal tax returns required during the three years preceding this certification;
- (2) has not been convicted of a criminal offense under the Internal Revenue Code of 1986; and
- (3) has not, more than 90 days prior to this certification, been notified of any unpaid Federal tax assessment for which the liability remains unsatisfied, unless the assessment is the subject of an installment agreement or offer in compromise that has been approved by the Internal Revenue Service and is not in default, or the assessment is the subject of a non-frivolous administrative or judicial proceeding.

### **Certification Regarding Unpaid Federal Tax Liability**

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal Tax Liability:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has no unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

### **Certification Regarding Criminal Convictions**

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Criminal Convictions:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has not been convicted of a felony criminal violation under any Federal law within the 24 months preceding the date on which the certification is signed.

### **Certification Dual Use Research of Concern**

By electronically signing the certification pages, the Authorized Organizational Representative is certifying that the organization will be or is in compliance with all aspects of the United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	SIGNATURE	DATE
NAME <b>Emily T Robinson</b>	<b>Electronic Signature</b>	<b>Dec 11 2018 12:58PM</b>
TELEPHONE NUMBER	EMAIL ADDRESS	FAX NUMBER
<b>413-585-3010</b>	<b>erobinso@smith.edu</b>	<b>413-585-3070</b>

## **COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION**

PROGRAM ANNOUNCEMENT/SOLICITATION NO./DUE DATE <b>NSF 17-590</b> <b>12/11/18</b>		<input type="checkbox"/> Special Exception to Deadline Date Policy			FOR NSF USE ONLY
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.) <b>DUE - IUSE-Developmen &amp; Implem Institut &amp; Comm Transform</b>					<b>NSF PROPOSAL NUMBER</b> <b>1915223</b>
DATE RECEIVED <b>12/11/2018</b>	NUMBER OF COPIES <b>1</b>	DIVISION ASSIGNED <b>11040000 DUE</b>	FUND CODE <b>1998</b>	DUNS# (Data Universal Numbering System) <b>152652822</b>	FILE LOCATION <b>12/12/2018 10:37am S</b>
EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN) <b>141368361</b>		SHOW PREVIOUS AWARD NO. IF THIS IS <input type="checkbox"/> A RENEWAL <input type="checkbox"/> AN ACCOMPLISHMENT-BASED RENEWAL		IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> IF YES, LIST ACRONYM(S)	
NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE <b>SUNY at Albany</b>		ADDRESS OF AWARDEE ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE <b>SUNY at Albany 1400 WASHINGTON AVE MSC 100A Albany, NY. 122220100</b>			
AWARDEE ORGANIZATION CODE (IF KNOWN) <b>0028357000</b>					
NAME OF PRIMARY PLACE OF PERF <b>SUNY at Albany</b>		ADDRESS OF PRIMARY PLACE OF PERF, INCLUDING 9 DIGIT ZIP CODE <b>SUNY at Albany NY ,122220100 ,US.</b>			
IS AWARDEE ORGANIZATION (Check All That Apply)		<input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> FOR-PROFIT ORGANIZATION	<input type="checkbox"/> MINORITY BUSINESS <input type="checkbox"/> WOMAN-OWNED BUSINESS	<input type="checkbox"/> IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE	
TITLE OF PROPOSED PROJECT <b>Collaborative Research: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional Norms</b>					
REQUESTED AMOUNT <b>\$ 288,576</b>	PROPOSED DURATION (1-60 MONTHS) <b>48 months</b>	REQUESTED STARTING DATE <b>07/01/20</b>	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE		
THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW					
<input type="checkbox"/> BEGINNING INVESTIGATOR <input type="checkbox"/> DISCLOSURE OF LOBBYING ACTIVITIES <input type="checkbox"/> PROPRIETARY & PRIVILEGED INFORMATION <input type="checkbox"/> HISTORIC PLACES <input type="checkbox"/> VERTEBRATE ANIMALS IACUC App. Date _____ PHS Animal Welfare Assurance Number _____ <input checked="" type="checkbox"/> TYPE OF PROPOSAL <b>Research</b>					
PI/PD DEPARTMENT <b>Political Science</b>		PI/PD POSTAL ADDRESS <b>135 Western Avenue Milne Hall 314-A Albany, NY 12222 United States</b>			
PI/PD FAX NUMBER <b>518-442-5298</b>					
NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Email Address	
PI/PD NAME <b>Matthew C Ingram</b>	<b>PhD</b>	<b>2009</b>	<b>518-442-3248</b>	<b>mingram@albany.edu</b>	
CO-PI/PD					

## CERTIFICATION PAGE

### **Certification for Authorized Organizational Representative (or Equivalent) or Individual Applicant**

By electronically signing and submitting this proposal, the Authorized Organizational Representative (AOR) or Individual Applicant is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding conflict of interest (when applicable), drug-free workplace, debarment and suspension, lobbying activities (see below), nondiscrimination, flood hazard insurance (when applicable), responsible conduct of research, organizational support, Federal tax obligations, unpaid Federal tax liability, and criminal convictions as set forth in the NSF Proposal & Award Policies & Procedures Guide (PAPPG). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U.S. Code, Title 18, Section 1001).

#### **Certification Regarding Conflict of Interest**

The AOR is required to complete certifications stating that the organization has implemented and is enforcing a written policy on conflicts of interest (COI), consistent with the provisions of PAPPG Chapter IX.A.; that, to the best of his/her knowledge, all financial disclosures required by the conflict of interest policy were made; and that conflicts of interest, if any, were, or prior to the organization's expenditure of any funds under the award, will be, satisfactorily managed, reduced or eliminated in accordance with the organization's conflict of interest policy. Conflicts that cannot be satisfactorily managed, reduced or eliminated and research that proceeds without the imposition of conditions or restrictions when a conflict of interest exists, must be disclosed to NSF via use of the Notifications and Requests Module in FastLane.

#### **Drug Free Work Place Certification**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent), is providing the Drug Free Work Place Certification contained in Exhibit II-3 of the Proposal & Award Policies & Procedures Guide.

#### **Debarment and Suspension Certification**

(If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency?

Yes

No

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant is providing the Debarment and Suspension Certification contained in Exhibit II-4 of the Proposal & Award Policies & Procedures Guide.

#### **Certification Regarding Lobbying**

This certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding \$100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000.

#### **Certification for Contracts, Grants, Loans and Cooperative Agreements**

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

#### **Certification Regarding Nondiscrimination**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is providing the Certification Regarding Nondiscrimination contained in Exhibit II-6 of the Proposal & Award Policies & Procedures Guide.

#### **Certification Regarding Flood Hazard Insurance**

Two sections of the National Flood Insurance Act of 1968 (42 USC §4012a and §4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:

- (1) community in which that area is located participates in the national flood insurance program; and
- (2) building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:

- (1) for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
- (2) for other NSF grants when more than \$25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

#### **Certification Regarding Responsible Conduct of Research (RCR)**

**(This certification is not applicable to proposals for conferences, symposia, and workshops.)**

By electronically signing the Certification Pages, the Authorized Organizational Representative is certifying that, in accordance with the NSF Proposal & Award Policies & Procedures Guide, Chapter IX.B., the institution has a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students and postdoctoral researchers who will be supported by NSF to conduct research. The AOR shall require that the language of this certification be included in any award documents for all subawards at all tiers.

## CERTIFICATION PAGE - CONTINUED

### **Certification Regarding Organizational Support**

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that there is organizational support for the proposal as required by Section 526 of the America COMPETES Reauthorization Act of 2010. This support extends to the portion of the proposal developed to satisfy the Broader Impacts Review Criterion as well as the Intellectual Merit Review Criterion, and any additional review criteria specified in the solicitation. Organizational support will be made available, as described in the proposal, in order to address the broader impacts and intellectual merit activities to be undertaken.

### **Certification Regarding Federal Tax Obligations**

When the proposal exceeds \$5,000,000, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal tax obligations. By electronically signing the Certification pages, the Authorized Organizational Representative is certifying that, to the best of their knowledge and belief, the proposing organization:

- (1) has filed all Federal tax returns required during the three years preceding this certification;
- (2) has not been convicted of a criminal offense under the Internal Revenue Code of 1986; and
- (3) has not, more than 90 days prior to this certification, been notified of any unpaid Federal tax assessment for which the liability remains unsatisfied, unless the assessment is the subject of an installment agreement or offer in compromise that has been approved by the Internal Revenue Service and is not in default, or the assessment is the subject of a non-frivolous administrative or judicial proceeding.

### **Certification Regarding Unpaid Federal Tax Liability**

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal Tax Liability:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has no unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

### **Certification Regarding Criminal Convictions**

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Criminal Convictions:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has not been convicted of a felony criminal violation under any Federal law within the 24 months preceding the date on which the certification is signed.

### **Certification Dual Use Research of Concern**

By electronically signing the certification pages, the Authorized Organizational Representative is certifying that the organization will be or is in compliance with all aspects of the United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	SIGNATURE	DATE
NAME <b>Daniel Whaley</b>	<b>Electronic Signature</b>	<b>Dec 11 2018 1:00PM</b>
TELEPHONE NUMBER	EMAIL ADDRESS	FAX NUMBER
<b>518-437-4555</b>	<b>dwhaley@albany.edu</b>	<b>518-437-4560</b>

**NATIONAL SCIENCE FOUNDATION**  
Division of Undergraduate Education

**NSF FORM 1295: PROJECT DATA FORM**

The instructions and codes to be used in completing this form are provided in Appendix II.

1. Program-track to which the Proposal is submitted: **IUSE-Developmen & Implem Institut & Comm Transform**
2. Name of Principal Investigator/Project Director (as shown on the Cover Sheet):  
**Ball, Richard**
3. Name of submitting Institution (as shown on Cover Sheet):  
**Haverford College**
4. Other Institutions involved in the project's operation:  
**University at Albany (SUNY)**  
**Smith College**  
**St. Lawrence Universitiy**  
**California State University, Fresno**

**Project Data:**

- A. Major Discipline Code: **99**
- B. Academic Focus Level of Project: **BO**
- C. Highest Degree Code: **B**
- D. Category Code: **--**
- E. Business/Industry Participation Code: **NA**
- F. Audience Code: **WMF**
- G. Institution Code: **PRIV**
- H. Strategic Area Code: \_\_\_\_\_
- I. Project Features: **1 2 3** \_\_\_\_\_

Estimated number in each of the following categories to be directly affected by the activities of the project during its operation:

- J. Undergraduate Students: **11000** \_\_\_\_\_
- K. Pre-College (PreK-12) Students: **0** \_\_\_\_\_
- L. College Faculty: **440** \_\_\_\_\_
- M. Pre-College (PreK-12) Teachers: **0** \_\_\_\_\_
- N. Graduate Students: **0** \_\_\_\_\_
- O. Postdoctoral Fellows: **0** \_\_\_\_\_

**NATIONAL SCIENCE FOUNDATION**  
Division of Undergraduate Education

**NSF FORM 1295: PROJECT DATA FORM**

The instructions and codes to be used in completing this form are provided in Appendix II.

1. Program-track to which the Proposal is submitted: **IUSE-Developmen & Implem Institut & Comm Transform**
2. Name of Principal Investigator/Project Director (as shown on the Cover Sheet):  
**OHara, Michael**
3. Name of submitting Institution (as shown on Cover Sheet):  
**Saint Lawrence University**
4. Other Institutions involved in the project's operation:  
**Haverford College**  
**Smith College**  
**University at Albany (SUNY)**  
**California State University, Fresno**

**Project Data:**

- A. Major Discipline Code: **99**
- B. Academic Focus Level of Project: **BO**
- C. Highest Degree Code: **B**
- D. Category Code: **--**
- E. Business/Industry Participation Code: **NA**
- F. Audience Code: **WMF**
- G. Institution Code: **PRIV**
- H. Strategic Area Code: \_\_\_\_\_
- I. Project Features: **1 2 3** \_\_\_\_\_

Estimated number in each of the following categories to be directly affected by the activities of the project during its operation:

- J. Undergraduate Students: **11000** \_\_\_\_\_
- K. Pre-College (PreK-12) Students: **0** \_\_\_\_\_
- L. College Faculty: **440** \_\_\_\_\_
- M. Pre-College (PreK-12) Teachers: **0** \_\_\_\_\_
- N. Graduate Students: **0** \_\_\_\_\_
- O. Postdoctoral Fellows: **0** \_\_\_\_\_

**NATIONAL SCIENCE FOUNDATION**  
Division of Undergraduate Education

**NSF FORM 1295: PROJECT DATA FORM**

The instructions and codes to be used in completing this form are provided in Appendix II.

1. Program-track to which the Proposal is submitted: **IUSE-Developmen & Implem Institut & Comm Transform**
2. Name of Principal Investigator/Project Director (as shown on the Cover Sheet):  
**Vera, David**
3. Name of submitting Institution (as shown on Cover Sheet):  
**California State University-Fresno Foundation**
4. Other Institutions involved in the project's operation:  
**Haverford College**  
**University at Albany (SUNY)**  
**St. Lawrence University**  
**Smith College**  
  

---

---

**Project Data:**

- A. Major Discipline Code: **99**
- B. Academic Focus Level of Project: **BO**
- C. Highest Degree Code: **D**
- D. Category Code: **--**
- E. Business/Industry Participation Code: **NA**
- F. Audience Code: **WMF**
- G. Institution Code: **PUBL**
- H. Strategic Area Code: \_\_\_\_\_
- I. Project Features: **1 2 3** \_\_\_\_\_

Estimated number in each of the following categories to be directly affected by the activities of the project during its operation:

- J. Undergraduate Students: **11000** \_\_\_\_\_
- K. Pre-College (PreK-12) Students: **0** \_\_\_\_\_
- L. College Faculty: **440** \_\_\_\_\_
- M. Pre-College (PreK-12) Teachers: **0** \_\_\_\_\_
- N. Graduate Students: **0** \_\_\_\_\_
- O. Postdoctoral Fellows: **0** \_\_\_\_\_

**NATIONAL SCIENCE FOUNDATION**  
Division of Undergraduate Education

**NSF FORM 1295: PROJECT DATA FORM**

The instructions and codes to be used in completing this form are provided in Appendix II.

1. Program-track to which the Proposal is submitted: **IUSE-Exploration & Desig: Institut & Comm Transfor**
2. Name of Principal Investigator/Project Director (as shown on the Cover Sheet):  
**Halliday, Simon**
3. Name of submitting Institution (as shown on Cover Sheet):  
**Smith College**
4. Other Institutions involved in the project's operation:  
**Haverford College**  
**University of Albany (SUNY)**  
**St. Lawrence University**  
**California State University, Fresno**  
  

---

---

**Project Data:**

- A. Major Discipline Code: **99**
- B. Academic Focus Level of Project: **BO**
- C. Highest Degree Code: **M**
- D. Category Code: **--**
- E. Business/Industry Participation Code: **NA**
- F. Audience Code: **WMF**
- G. Institution Code: **PRIV**
- H. Strategic Area Code: \_\_\_\_\_
- I. Project Features: **1 2 3** \_\_\_\_\_

Estimated number in each of the following categories to be directly affected by the activities of the project during its operation:

- J. Undergraduate Students: **11000** \_\_\_\_\_
- K. Pre-College (PreK-12) Students: **0** \_\_\_\_\_
- L. College Faculty: **440** \_\_\_\_\_
- M. Pre-College (PreK-12) Teachers: **0** \_\_\_\_\_
- N. Graduate Students: **0** \_\_\_\_\_
- O. Postdoctoral Fellows: **0** \_\_\_\_\_

**NATIONAL SCIENCE FOUNDATION**  
Division of Undergraduate Education

**NSF FORM 1295: PROJECT DATA FORM**

The instructions and codes to be used in completing this form are provided in Appendix II.

1. Program-track to which the Proposal is submitted: **IUSE-Developmen & Implem Institut & Comm Transform**
2. Name of Principal Investigator/Project Director (as shown on the Cover Sheet):  
**Ingram, Matthew**
3. Name of submitting Institution (as shown on Cover Sheet):  
**SUNY at Albany**
4. Other Institutions involved in the project's operation:  
**Haverford College**  
**Smith College**  
**St. Lawrence University**  
**California State University, Fresno**

**Project Data:**

- A. Major Discipline Code: **99**
- B. Academic Focus Level of Project: **BO**
- C. Highest Degree Code: **D**
- D. Category Code: **--**
- E. Business/Industry Participation Code: **NA**
- F. Audience Code: **WMF**
- G. Institution Code: **PUBL**
- H. Strategic Area Code: \_\_\_\_\_
- I. Project Features: **1 2 3** \_\_\_\_\_

Estimated number in each of the following categories to be directly affected by the activities of the project during its operation:

- J. Undergraduate Students: **11000** \_\_\_\_\_
- K. Pre-College (PreK-12) Students: **0** \_\_\_\_\_
- L. College Faculty: **440** \_\_\_\_\_
- M. Pre-College (PreK-12) Teachers: **0** \_\_\_\_\_
- N. Graduate Students: **0** \_\_\_\_\_
- O. Postdoctoral Fellows: **0** \_\_\_\_\_

Project TIER, an initiative established in 2013 by PIs Ball and Medeiros, is guided by the premise that instruction in principles and practices of research transparency should be an integral component in the quantitative methods training of students in fields involving applied data analysis. Its efforts are focused on developing reproducible workflows and documentation protocols, creating curricular materials that instructors can use to introduce these methods to their students, and disseminating these materials via workshops, conference presentations, and a web site. Materials produced by Project TIER have been adopted by faculty from a diverse set of US and international institutions, and additional instructors begin using TIER resources every semester. Project TIER's long-term vision is to foster continued growth in this cadre of instructors, until a point is reached at which educators share a generalized view that transparency and reproducibility are essential components of best practices of empirical research—not a special niche topic. The ultimate objective is that practical training in reproducible research methods should become a standard and ubiquitous element in the quantitative methods curriculum.

The collaborative project proposed here will build upon the foundation laid by the first five years of Project TIER, but broaden the scope and scale of the initiative in ways that will increase its impact by an order of magnitude. Existing curriculum will be enhanced, and new curriculum on alternative approaches to reproducible research will be developed; programs offered by Project TIER in the past will be expanded, and new programs aimed at enlarging and diversifying the audiences served will be implemented; and the leadership, professional expertise, and administrative support required by this expansion will be provided by an enlarged cohort of PIs and a new full-time staff position. Consistent with the goals that have guided Project TIER since its inception, the activities supported by this grant are designed to bring about a transformation of professional norms and induce a systemic change in practices, ultimately resulting in the incorporation of transparent and reproducible methods as an integral dimension of training in quantitative research.

## TABLE OF CONTENTS

For font size and page formatting specifications, see PAPPG section II.B.2.

	<b>Total No. of Pages</b>	<b>Page No.* (Optional)*</b>
Cover Sheet for Proposal to the National Science Foundation		
Project Summary (not to exceed 1 page)	<u>1</u>	
Table of Contents	<u>1</u>	
Project Description (Including Results from Prior NSF Support) (not to exceed 15 pages) <b>(Exceed only if allowed by a specific program announcement/solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)</b>	<u>13</u>	
References Cited	<u>1</u>	
Biographical Sketches (Not to exceed 2 pages each)	<u>6</u>	
Budget (Plus up to 3 pages of budget justification)	<u>10</u>	
Current and Pending Support	<u>3</u>	
Facilities, Equipment and Other Resources	<u>1</u>	
Special Information/Supplementary Documents (Data Management Plan, Mentoring Plan and Other Supplementary Documents)	<u>2</u>	
Appendix (List below.) <b>(Include only if allowed by a specific program announcement/ solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)</b>		
Appendix Items:		

\*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

## TABLE OF CONTENTS

For font size and page formatting specifications, see PAPPG section II.B.2.

	<b>Total No. of Pages</b>	<b>Page No.* (Optional)*</b>
Cover Sheet for Proposal to the National Science Foundation		
Project Summary (not to exceed 1 page)	_____	_____
Table of Contents	<u>1</u>	_____
Project Description (Including Results from Prior NSF Support) (not to exceed 15 pages) <b>(Exceed only if allowed by a     specific program announcement/solicitation or if approved in     advance by the appropriate NSF Assistant Director or designee)</b>	0	_____
References Cited	_____	_____
Biographical Sketches (Not to exceed 2 pages each)	<u>1</u>	_____
Budget (Plus up to 3 pages of budget justification)	<u>6</u>	_____
Current and Pending Support	1	_____
Facilities, Equipment and Other Resources	1	_____
Special Information/Supplementary Documents (Data Management Plan, Mentoring Plan and Other Supplementary Documents)	2	_____
Appendix (List below.) <b>(Include only if allowed by a specific program announcement/ solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)</b>	_____	_____
Appendix Items:		

\*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

## TABLE OF CONTENTS

For font size and page formatting specifications, see PAPPG section II.B.2.

	<b>Total No. of Pages</b>	<b>Page No.* (Optional)*</b>
Cover Sheet for Proposal to the National Science Foundation		
Project Summary (not to exceed 1 page)	_____	_____
Table of Contents	1	_____
Project Description (Including Results from Prior NSF Support) (not to exceed 15 pages) <b>(Exceed only if allowed by a specific program announcement/solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)</b>	0	_____
References Cited	_____	_____
Biographical Sketches (Not to exceed 2 pages each)	1	_____
Budget (Plus up to 3 pages of budget justification)	7	_____
Current and Pending Support	1	_____
Facilities, Equipment and Other Resources	1	_____
Special Information/Supplementary Documents (Data Management Plan, Mentoring Plan and Other Supplementary Documents)	2	_____
Appendix (List below.) <b>(Include only if allowed by a specific program announcement/ solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)</b>	_____	_____
Appendix Items:		

\*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

## TABLE OF CONTENTS

For font size and page formatting specifications, see PAPPG section II.B.2.

	<b>Total No. of Pages</b>	<b>Page No.* (Optional)*</b>
Cover Sheet for Proposal to the National Science Foundation		
Project Summary (not to exceed 1 page)	_____	_____
Table of Contents	<u>1</u>	_____
Project Description (Including Results from Prior NSF Support) (not to exceed 15 pages) <b>(Exceed only if allowed by a specific program announcement/solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)</b>	<u>0</u>	_____
References Cited	_____	_____
Biographical Sketches (Not to exceed 2 pages each)	<u>1</u>	_____
Budget (Plus up to 3 pages of budget justification)	<u>7</u>	_____
Current and Pending Support	<u>1</u>	_____
Facilities, Equipment and Other Resources	<u>1</u>	_____
Special Information/Supplementary Documents (Data Management Plan, Mentoring Plan and Other Supplementary Documents)	<u>2</u>	_____
Appendix (List below.) <b>(Include only if allowed by a specific program announcement/ solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)</b>	_____	_____
Appendix Items:		

\*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

## TABLE OF CONTENTS

For font size and page formatting specifications, see PAPPG section II.B.2.

	<b>Total No. of Pages</b>	<b>Page No.* (Optional)*</b>
Cover Sheet for Proposal to the National Science Foundation		
Project Summary (not to exceed 1 page)	_____	_____
Table of Contents	1	_____
Project Description (Including Results from Prior NSF Support) (not to exceed 15 pages) <b>(Exceed only if allowed by a     specific program announcement/solicitation or if approved in     advance by the appropriate NSF Assistant Director or designee)</b>	0	_____
References Cited	_____	_____
Biographical Sketches (Not to exceed 2 pages each)	2	_____
Budget (Plus up to 3 pages of budget justification)	8	_____
Current and Pending Support	1	_____
Facilities, Equipment and Other Resources	1	_____
Special Information/Supplementary Documents (Data Management Plan, Mentoring Plan and Other Supplementary Documents)	2	_____
Appendix (List below.) <b>(Include only if allowed by a specific program announcement/ solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)</b>	_____	_____
Appendix Items:		

\*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

## **I. Intellectual Merit**

### **I-A. Background**

Project TIER, an initiative established in 2013 by PIs Ball and Medeiros, is guided by the premise that instruction in principles and practices of research transparency should be an integral component in the quantitative methods training of students in fields involving applied data analysis. Its efforts are focused on developing reproducible workflows and documentation protocols, creating curricular materials that instructors can use to introduce these methods to their students, and disseminating these materials via workshops, conference presentations, and a web site. Materials produced by Project TIER have been adopted by faculty from a diverse set of US and international institutions, and additional instructors begin using TIER resources every semester. Project TIER's long-term vision is to foster continued growth in this cadre of instructors, until a point is reached at which educators share a generalized view that transparency and reproducibility are essential components of best practices of empirical research—not a special niche topic. The ultimate objective is that practical training in reproducible research methods should become a standard and ubiquitous element in the quantitative methods curriculum.

The collaborative project proposed here will build upon the foundation laid by the first five years of Project TIER, but broaden the scope and scale of the initiative in ways that will increase its impact by an order of magnitude. Existing curriculum will be enhanced, and new curriculum on alternative approaches to reproducible research will be developed; programs offered by Project TIER in the past will be expanded, and new programs aimed at enlarging and diversifying the audiences served will be implemented; and the leadership, professional expertise, and administrative support required by this expansion will be provided by an enlarged cohort of PIs and a new full-time staff position. Consistent with the goals that have guided Project TIER since its inception, the activities supported by this grant are designed to bring about a transformation of professional norms and induce a systemic change in practices, ultimately resulting in the incorporation of transparent and reproducible methods as an integral dimension of training in quantitative research.

#### **I-A-1. Existing TIER Curriculum**

The methods promoted by Project TIER are organized around the goal of computational reproducibility. Up to now, Project TIER's approach to reproducibility has been embodied in the TIER Protocol, a comprehensive set of guidelines for constructing electronic replication documentation<sup>1</sup> to accompany an empirical study. The TIER Protocol is based on the principle that the documentation should contain sufficient code, data and explanatory information to enable an independent user to (i) understand the data originally collected or otherwise obtained by the author of the study, (ii) reproduce

---

<sup>1</sup> Despite the common distinction between reproducing computations and replicating experimental results, terminology used in this proposal follows the common (though potentially confusing) convention of using the term "replication documentation" to refer to documentation that can be used to reproduce the computations that generated the results reported in a study.

the computations by which the original data were transformed into the final (clean, processed) data used in the analysis, and (iii) execute the procedures that generated the results reported in the study from the final data. The TIER Protocol was originally developed by PIs Ball and Medeiros for use by students writing research papers in an introductory statistics class at Haverford College.

The Protocol consists of two parts: specifications and process. The specifications describe the content and organization of the complete replication documentation that students should prepare to accompany their research papers. The components of the documentation include: original data, final data, code that transforms the data, code that generates results, metadata (essentially codebooks for the original data), a data-appendix (essentially a codebook for the final data), and a read-me file. The specifications also describe where each of these files should be stored within a defined structure of folders and subfolders.

The process part of the Protocol describes the sequence of steps that students follow over the course of the entire semester in which they write their papers, from before they have obtained any data to the final checks of their documentation. These guidelines emphasize that the construction of replication documentation should be integrated throughout the entire research process: each step of the research should be documented at the same time it is carried out. Attempting to construct replication documentation from scratch after a study has been completed is at best highly inefficient, and often impossible.

Ball and Medeiros's original motivation for asking students to provide documentation for their papers was prosaic but fundamental: before that requirement was imposed, Ball and Medeiros were frequently unable to understand the accounts students gave in their papers of what data they had used and what steps of processing and analysis they had carried out. Given that the students were mostly sophomores with little or no prior experience in computing or data analysis, their inability to keep track of and articulate everything they had done was understandable, but that was not a satisfactory state of affairs. Teaching students to implement the TIER Protocol has solved that problem. The vast majority of students—easily 80%—submit replication documentation that runs and accurately reproduces all the data processing and analysis they conducted for their papers. In so doing they achieve a high degree of transparency: simply reading and/or running the students' code unambiguously answers any questions the instructors might have about what the students did with their data.

Teaching students to document their projects has also produced a number of unanticipated but highly valuable benefits:<sup>2</sup>

(i) Students develop technical skills that are useful in their subsequent academic and professional lives. Many of Ball and Medeiros's students, as well as students of many of their colleagues who teach reproducible research methods, report that they have gone on to use their data management and documentation skills in other college research projects (notably senior theses), in jobs as research assistants at federal agencies and think-tanks, and in graduate school in a range of quantitative disciplines.

(ii) When students document their research throughout the process of conducting it and

---

<sup>2</sup> At this point, evidence of the benefits described below is anecdotal. This grant includes a variety of assessment activities (section I-C-5) that will generate and evaluate systematic evidence on the existence and strength of such benefits.

store all their work on an online file sharing platform, communication between research advisor and advisee is radically transformed. Ball and Medeiros have established an "advising workflow" for supervising the projects students conduct in their class. Throughout the semester, students store all their documents (organized within a structured folder hierarchy as specified by the TIER Protocol) on a file sharing platform<sup>3</sup> to which both they and the instructor have access. At the beginning of each advising meeting, the instructor downloads the entire project to her own computer, and attempts to run all the student's scripts, up to the point to which the student's work has advanced. When glitches arise, the instructor and student work together to diagnose and correct the problem. When the scripts run without glitches, the faculty member is in an ideal position to respond to any questions the student has: thanks to the scripts, she is fully informed of exactly what the student has done up to that point, and because she has the data live at her fingertips, she is able to flexibly explore any issues that arise.<sup>4</sup> At the end of the meeting, the instructor uploads the scripts she was working in back to the student's project on the file sharing platform, so that the student is left with a complete record of the session.

(iii) Students become more engaged in their projects and gain confidence in their own abilities. Following a protocol that ensures the reproducibility of their projects requires students to work deliberately and be attentive at each step of the research. This heightened mindfulness helps students keep track of what they have done and deepens their conceptual understanding of their own projects. As a consequence, students' engagement with their projects is increased, and they gain confidence in the validity of their results and in their own ability to generate meaningful insights from statistical data.

(iv) Regardless of students' academic and career goals, practicing reproducible research reinforces fundamental principles of integrity and accountability. Showing students how they can make their work with data wholly transparent, and requiring them to do so, reinforces the general principle that when an author asserts that a claim is supported by empirical research, she must be prepared to support that assertion with credible data and sound analytical arguments. Permitting students to turn in reports about quantitative studies that they themselves realize are not reproducible undermines this core principle of integrity and accountability.

The TIER Protocol, described above, has been the cornerstone of the curricular materials Project TIER has produced to date. A web version is available on the Project TIER website, and a text version is available for download. Instructors can refer students directly to the web version, or edit the text version in any ways that suit their needs.

Several additional materials have been developed to support teaching and learning the TIER Protocol:

(i) A demonstration project. The demo project consists of a brief sample paper accompanied by complete replication documentation constructed, both designed to highlight the critical dimensions of the TIER Protocol. By running the scripts (Stata do-

---

<sup>3</sup> Dropbox, Google Drive, OSF, Dataverse and GitHub are some prominent examples of suitable platforms.

<sup>4</sup> Wall projection or a second monitor attached to the instructor's computer can help the student follow the advisor's exploration of the data.

files), students preparing to embark on their own projects can gain a concrete understanding of the expectations for the documentation they will produce.

(ii) A complete set of scaffolded instructions for a semester long research project, aimed at lower-level undergraduates in introductory courses on statistical methods. These instructions are organized around the substantive sections of the research paper (literature review, data overview, descriptive statistics, analysis, etc.), with guidance on constructed the associated components of the documentation integrated throughout.

(iii) Real examples of student work. A collection of undergraduate research projects, mainly senior theses, accompanied by exemplary replication documentation, is available on the Project TIER website, and the Project TIER Dataverse (hosted at the Harvard University Dataverse Installation).

(iii) The alcohol exercise. This exercise is based on a simple but revealing analysis of data from a survey on alcohol consumption by US college students. It is the newest addition to the resources posted on the TIER website, but it has been circulating for several years and numerous faculty members have used it successfully in their classes. The exercise was designed with the explicit purpose of guiding students through the essential steps involved conducting and documenting a semester-long thesis or class project, but is structured in such a way that it can be completed in just 1-2 weeks. A critical advantage of this format is that it means the exercise can be used in settings where departmental curricular requirements or institutional resource constraints make it impossible to assign semester long projects, so that students are not prevented from learning reproducible research skills. Since these constraints are likely to arise disproportionately at institutions serving underrepresented and underserved students, exercises of this nature offer a means of increasing the inclusiveness of Project TIER's efforts to promote reproducible research methods. For this reason, the alcohol exercise is just the first in what is envisaged to become an extensive suite of similar exercises that will be developed with the support of the proposed grant.

## I-A-2. Past and Ongoing TIER Outreach

Project TIER's programs and outreach have been supported by four grants: from ICPSR (June 2013-May 2014, \$20,000), the Alfred P. Sloan Foundation (January 2015-June 2016, \$98,486), an anonymous donor (October 2015-September 2016, \$140,000), and the Alfred P. Sloan Foundation (July 17-June 2020, \$302,246)

The principal activities Project TIER has used to publicize and promote adoption of its curricular materials have included:

(i) Faculty Development Workshops. The target audience for these workshops consists of faculty who teach quantitative methods courses and/or supervise empirical undergraduate research involving statistical data, but to date have done little to incorporate reproducible research methods into their teaching and advising. The workshops emphasize practical strategies for introducing reproducible research methods to students from diverse backgrounds and in a variety of settings—differing, for example, in class size, preparedness of students, access to data and computing resources, and course time available to devote to reproducibility—so that participants are fully prepared to implement the methods presented at the workshops when they return to their home institutions.

Since 2013, Project TIER has offered about two Faculty Development Workshops per year. With two exceptions (a January 2017 workshop at Occidental College and a March 2018 workshop at UCLA), they have been held at Haverford College.

These workshops have been critical to the success of Project TIER: A large proportion of the instructors who have adopted TIER curriculum first learned about it at one of these events.

(ii) Faculty Fellowships. Project TIER has awarded about four Faculty Fellowships per year since AY 2015-16. Fellows contribute to Project TIER's core curriculum development and outreach programs, but also undertake self-initiated activities related to their particular areas of expertise. Fellows have enriched Project TIER by bringing perspectives from varied academic disciplines, and from institutions that differ in size, wealth and background of the student body. Fellows have also expanded the range of approaches to reproducible research that Project TIER supports by introducing tools being developed by data scientists, notably R, R Markdown, Python and Jupyter notebooks. Further development of curriculum for using these tools will figure prominently in the activities supported by the proposed grant.

In June of every year, the cohort completing their Fellowship year and the new cohort about to begin service convene at Haverford College for a 2-day Fellows Conference that helps ensure continuity and coherence in their activities, and frequently leads to further collaborations among Fellows from different years.

(iii) External Conferences and Workshops. Project TIER supports frequent presentations at external (organized by groups other than Project TIER) conferences and workshops. All of the PIs on the collaborative proposals linked to this one have received funds through Project TIER to give TIER-related talks at meetings of their professional societies or serve as instructors at workshops or trainings.

(iv) The Project TIER Website. Project TIER has hired private web development firms to design and build its website, and maintains an ongoing relationship with a firm that updates and enhances the site as new content is developed. The website makes all the curricular resources produced by Project TIER freely accessible to the public, and is a source of information on TIER programs and events.

## I-B. The Proposed Grant

In its first five years, Project TIER has grown from an in-house effort to promote research transparency in a single classroom to a nationally recognized contributor to the multi-disciplinary efforts underway to improve the rigor of research across the social and natural sciences. It has developed a suite of curricular materials and promoted them through its own events and in numerous highly-visible venues. TIER resources have been featured in dozens of presentations, workshops, publications and MOOCs by third parties, and have been the subject of extensive conversations on social media. 37 faculty members from a range of disciplines and diverse institutions have informed the TIER Directors that they have used TIER curriculum in their classes and supervision of student research, and their comments on their experiences are overwhelmingly positive. The 7 PIs on these linked proposals view these outcomes as proof of concept: There is strong demand among educators for guidance and resources for incorporating

transparency and reproducibility into their quantitative methods curricula, and those who have adopted approaches promoted by Project TIER have found them effective.

But achieving a critical mass that achieves Project TIER's vision of systemic changes in norms regarding research transparency and commonly accepted practices for training students in quantitative methods will require an order of magnitude increase in the scale and scope of its interventions. This grant will harness the human and material resources necessary to support this scaling up. By the end of the grant period, the goal will be to increase the number of faculty using TIER-based curriculum from many dozens to many hundreds, directly impacting the education of many thousands of college students. The goal is to increase awareness and use of TIER resources to a point at which dissemination is driven by word of mouth and further adoption becomes self-sustaining, and a tipping point is reached at which new norms become securely established. The vision is of a world in which principles and practices of transparency and reproducibility are thoroughly integrated into the curricula for teaching quantitative methods, and omitting this from undergraduate research training is viewed as aberrant.

The new grant will support continuation of the activities that have been central to TIER's success to date—Faculty Development Workshops, the Faculty Fellows Program, PI travel to external conferences and workshops, and web development.

New initiatives to increase Project TIER's horizons and impact will include:

### I-B-1. Curriculum Development

Expanding the scope of Project TIER's curricular resources is a major goal for the new grant. Key components will include:

(i) Enhancement of the original TIER Protocol. These enhancements will include new sections emphasizing the interrelatedness and critical importance of three elements of a reproducible workflow: deliberately setting the software's working directory, establishing a fixed hierarchy for the folders in which project files are stored, and using relative directory paths when writing commands that specify the locations from which files should be opened or to which files should be saved. Additionally, pop-up "help" buttons will be inserted in the web version of the Protocol at points in which users are likely to need extra guidance.

(ii) Developing new protocols based on alternative workflows for reproducible research. The workflow by which the original TIER Protocol ensures research transparency is based on a research style that has been and remains prevalent in many of the social sciences. It entails writing scripts that reproduce results reported in a study, but is silent on how the computer-generated output finds its way into the report manuscript. An alternative approach, borrowed from data science, involves writing a single document containing the text of a paper (in some version of a markup language), with chunks of statistical code inserted; sending this document to a processor renders a formatted report with the output generated by the statistical code inserted where specified by the author.

This "dynamic documents" workflow is rapidly increasing in popularity among researchers from fields across the natural and social sciences. For several years, most TIER workshops have included demonstrations of this markup approach, and the next step will be to formulate one or more new protocols for transparent and reproducible

research with dynamic documents that can be featured on the TIER website with the same prominence as the traditional TIER Protocol. In addition, ancillary materials like the ones currently available for the TIER Protocol—in particular, a demo project and a structured exercise that can be completed in 2 weeks or less—will also be created to support the dynamic documents protocols that are created.

Many high-quality resources for learning to write reports with dynamic documents are already available. Project TIER's contribution is its focus on serving the needs of undergraduates in the early stages of their research training. Principles that need to be enforced loud and clear for this constituency (like the trifecta of paying attention to the relative directory, maintaining a fixed folder structure, and using relative directory paths) are typically given less emphasis in resources designed for more experienced researchers. The ancillary products like demo projects and lab exercises that Project TIER will create to support instruction with dynamic documents will also be of special value to undergraduates. The philosophy behind Project TIER's efforts to reach students beginning in their most basic quantitative methods course is not to dumb down the tools being taught, but to offer students a hand up that enables them to master professional-level tools and develop their potential to become mature researchers.

(iii) Video. To serve students with a variety of learning styles, instructional videos, demos and tutorials will be produced to complement existing materials on the website, (which currently are heavily text- and html-based).

## I-B-2. Curriculum Development Retreats

Opportunities for collaboration on developing the new curriculum to be developed under the new grant will be provided by Curriculum Development Retreats that will be held about five times per year. At each retreat, roughly 3-5 individuals will gather in a mutually convenient location to spend 2-3 days working together to create curriculum for Project TIER—e.g., new and revised protocols, demos, exercises, workshop modules, and video content for the website. Most of the participants in the retreats will be PIs from this project, but other researchers or instructors with appropriate expertise may be invited from time to time.

These retreats will be time for focused and intense collaboration aimed at producing tangible outputs that can be added to Project TIER's collection of curricular resources. Before the retreats, organizers will establish concrete goals and set realistic work agendas for achieving them.

## I-C-3. TIER Opportunity Institute for Transparency in STEM (Parts of this section are adapted from material written by PI Ingram that may have been included in a grant previously submitted to the NSF but not funded.)

This grant will include four Summer Institutes, in which nationally-recruited undergraduates will participate in a 5-day, residential training program on computation and quantitative methods, with a focus on transparency and reproducibility. A key goal of this program will be to increase interest and readiness for STEM careers among students belonging to under-represented minorities (URMs), first-generation and

economically disadvantaged students, and women; and recruitment efforts will be targeted accordingly. To ensure that students can attend regardless of their financial resources, all expenses (including travel, lodging and meals) will be covered by the grant.

PIs Halliday and Ingram will be the lead organizers and instructors for the Summer Institutes, and the site will alternate annually between their two institutions over the four years of the grant. Participants will be rising juniors and seniors. Enrollment will be capped at 12 in the first year, but will increase to 20 in each of years 2 through 4. In addition to the lead instructor (Halliday or Ingram), three co-instructors will be recruited each year. For the sake of providing role models for the students, every effort will be made to recruit co-instructors who themselves are members of the groups for which this program is targeted (URMs, first-generation and low-income, and women). Finally, two advanced undergraduates or recent college graduates will participate each summer as peer mentors, providing additional guidance and individual attention to participants in the program.

Curricular content will include (i) foundational skills for collecting, organizing, cleaning and transforming statistical data, (ii) visualization of data to discover meaningful patterns and to communicate findings effectively, (iii) collaborative projects in which small groups of students apply these tools to real data, and (iv) a capstone event in which students present the results of their projects to the whole cohort of participants. To make these projects compelling to students, they will be based on data about their home communities. With support from instructors and peer mentors, students will identify and access data (environmental, climatological, public health, economic, demographic, political, etc., depending on the students' interests) about the communities they live in, then process and visualize the data to tell a story about their home community.

Throughout the institute, students will learn and implement workflows and documentation protocols being developed and promoted by Project TIER. There will be a particular emphasis on free, open-source tools, primarily R and Python. To ensure that the students can apply the skills they learn after the program is over, the institute will not make use of any proprietary or fee-based tools.

#### I-C-4. TIERFest

TIERFest will be an annual, 2-day event that brings together instructors who have previously participated in TIER programs, adopted TIER curriculum, or independently developed methods of their own for conducting and/or teaching reproducible research methods. By default, TIERFest will take place at Haverford College, but it could be held elsewhere if opportunities arise at other locations that would be advantageous in some way. Attendance is expected to be about 70 people per year.

Members of the TIER Executive Committee (see section I-C-6 below) will serve as moderators or instructors at a variety of sessions, including: (i) conference-style paper presentations, (ii) workshops on curriculum writing, with the goal of enlisting participants in TIERFest to contribute to Project TIER's efforts to create new curriculum, (iii) demonstrations of new software and platforms for reproducible research, (iv) poster

sessions highlighting innovative instructional methods and exemplary student projects, and (v) a keynote address by a leader in training in quantitative research methods.

In addition to the substantive exchange of ideas and information that takes place at TIERFest, the intensive interactions among participants over two days are expected to establish relationships and partnerships that lead to continuing collaboration in the future. More broadly, by bringing together each year a group of about 70 people who share a commitment to promote the integration of reproducibility in the quantitative methods training of undergraduate students, TIERFest will help build a sense of community among these educators, and foster the systemic changes in the shared norms and expectations that this project is intended to bring about.

#### **I-C-5. Assessment (Most of the text in this section was provided by Westat.)**

Westat, a nationally recognized social science research and evaluation firm based in Rockville, MD, will conduct an external evaluation of Project TIER. With approximately 2,000 staff members, Westat partners with federal, state, local, and foundation leaders to examine the implementation and outcomes of reform initiatives designed to improve education. Westat's scientists are skilled at providing supports in statistical analysis, data management, survey design, and sampling. Westat has provided evaluation services for a wide range of clients, including public school systems, federal agencies, state governments, foundations, and commercial companies. Its mixed methods studies in the STEM fields have covered the spectrum of education issues, at the preK-12 through postsecondary levels. Below is a brief description of each component of the evaluation.

The purpose of the **formative evaluation** will be to help facilitate implementation and support the project's ability to scale effectively. As part of a faculty survey conducted in years 1, 2, and 3 of the grant, and interviews conducted in years 1 and 3 (described below), Westat will address several topics pertaining to implementation. These include the extent to which, and how, faculty incorporate methods learned at the faculty development workshop into their classes and research advising, along with what types of factors facilitate or inhibit the ability of faculty to incorporate TIER methods into their practice. In each year, Westat will provide findings from the implementation component to Haverford College that are designed to inform the implementation of the Project TIER workshops at institutions that are already participating as well as planning for the program's rollout in new institutions each year. Conducting assessments on a regular basis through the collection of stakeholder feedback and other sources, reflecting on this information, and adapting practices based on such evidence will be critical to ensuring that the project's scaling is effective.

The **summative evaluation** will address the effects of the faculty workshops by examining differences between the treatment group and a comparison group (described below) in the skill of documenting empirical research, in understanding of statistical analyses and how to interpret results, as well as the overall quality of students' quantitative research papers. The treatment student group will be defined as students who are enrolled in quantitative methods classes taught by faculty who participated in TIER faculty development workshops and in which TIER-based replication documentation is taught. The comparison student group will be comprised of students

who are similar to those students whose faculty participate in TIER workshops but were in classes in which TIER-based replication documentation was not taught or required. Faculty who participate in TIER workshops will serve as the source of student research papers for both the treatment and comparison group. Specifically, for the comparison group, student research papers will be collected from faculty who are enrolled in (or plan to enroll in) a TIER workshop but have not yet been exposed to the TIER training and thus have not yet made TIER-based documentation part of what students do in their classes. For the treatment group, student research papers will be collected from the same faculty from future iterations of their classes, i.e., after they have participated in a TIER workshop and introduced the documentation component in their classes.

A set of criteria will be developed to review the research papers along several specific dimensions that pertain to the areas mentioned above (i.e., skills in documenting empirical research, understanding of statistical analyses and how to interpret results, and overall quality of research papers). In years 2, 3, and 4 of the grant, the evaluation team will score a sample of approximately 100 papers (i.e., 50 treatment and 50 comparison) on the basis of the established criteria (e.g., addressing inter-rater reliability, etc.) to determine differences between the pre-TIER workshop iterations of faculty members' classes and the post-TIER iterations of classes.

In years 1, 2, and 3 of the grant, Westat will administer a survey of faculty who participate in each faculty development workshop. Participating faculty will be asked to complete the survey approximately 6-12 months after they have completed the TIER workshop (i.e., to allow at least one semester for faculty to incorporate TIER-based documentation in their classes). These survey data will be used to examine (in addition to implementation topics, such as the degree to which faculty have incorporated TIER methods in their classes and research advising, as described above) perceived changes in the approaches used by faculty in conducting their own research and perceived changes in their attitudes/beliefs about instruction (e.g., how important reproducibility and good documentation is). These concepts will also be explored in more depth through telephone interviews conducted in years 1 and 3 with a small sample (i.e., 10-15) of faculty who participated in a TIER workshop.

To assess the impact of the Summer Institute for Transparency in STEM, a survey will be administered to student participants at the beginning and end of the Institute. Survey results will be analyzed to compare the pre- and post- results of student responses to determine the extent to which there are changes in students' knowledge and skills in working with statistical data and related areas, as well as their levels of interest in and readiness for STEM careers.

**Key Outcomes Addressed and Methods Used in Evaluation.** As indicated above, the evaluation will address impacts on both students and faculty, as well as program implementation. Table 1 shows a preliminary list of evaluation questions within each of these areas and how each data collection method corresponds to each specific evaluation question.

**Table 1. Evaluation Questions and Data Collection Methods**

Evaluation question	Faculty survey	Faculty interviews	Student survey	Analysis of student research papers
To what extent do students who are exposed to TIER methods in their classes use those methods in the future? In what specific ways do students use the methods and are there differences across students/institutions?			✓	
To what extent does students' exposure to TIER methods in their classes influence the ways in which they work with quantitative data in the future? In what specific ways are students influenced and are there differences across students/institutions?			✓	
To what extent do students who are exposed to TIER methods learn the skill of documenting empirical research?			✓	✓
To what extent do students who are exposed to TIER methods increase their understanding of statistical analyses and how to interpret results, as compared to students who are not exposed to TIER methods?			✓	✓
To what extent is the overall quality of quantitative research papers enhanced among students who are exposed to TIER methods, as compared to students who are not exposed to TIER methods?				✓
To what extent do faculty who participate in Project TIER change the way they do their own research? In what specific ways does their approach to research change and are there differences across faculty/institutions?	✓	✓		
To what extent are the attitudes/beliefs of faculty changed as a result of their participation in TIER workshops (e.g., how important reproducibility and good documentation is)? In what specific ways do their attitudes/beliefs about instruction change and are there differences across faculty/institutions?	✓	✓		
To what extent do faculty who participate in Project TIER workshops incorporate methods learned at the workshop into their classes and research advising? In what specific ways do faculty incorporate the methods and are there differences across faculty/institutions?	✓	✓		
What types of factors facilitate or inhibit the ability of faculty to incorporate methods into their classes and/or research advising?	✓	✓		

## I-C-6. Human Resources

PIs Ball and Medeiros have shared programmatic and administrative responsibility for all Project TIER activities since they founded the initiative together in 2013. Because that arrangement will no longer be feasible given the proposed increase in the scale of activity, additional human resources will be harnessed under the new grant.

### (i) Full-time Project Manager.

A non-exhaustive list of the Project manager's responsibilities includes: (i) managing the budget and paying bills; (ii) publicizing events, assisting with participant recruitment of participants, and making arrangements for travel, catering and meeting spaces; (iii) building databases of participants at TIER events and adopters of TIER curriculum; (iv) maintaining communication with colleagues and constituents via e-mail lists and Twitter; (v) preparing and distributing a quarterly newsletter; (vi) maintaining and updating the Project TIER website; and (vii) editorial assistance in the writing and testing of new curriculum, demos and exercises.

### (ii) Course Release for PI Ball

PI Ball's teaching duties at Haverford College, especially the introductory statistics classes he regularly offers, are highly complementary with Project TIER. As a faculty member at an undergraduate liberal arts college, however, PI Ball's carries a heavy teaching load (5 courses per year), and there is a trade-off between the time he spends teaching and the time he can devote to Project TIER.

Current funding from the Alfred P. Sloan Foundation releases Ball from one course per year, and to free up time for him to serve as Director of Project TIER. On the expectation that the expansion of scale under the new grant will double the time it requires of Ball, the budget therefore includes a 2-course (40%) reduction in Ball's teaching load in each of the four years of the grant.

### (iii) Executive Committee

Leadership for Project TIER under the new grant and beyond will be provided by an Executive Committee (EC) comprised initially of the 7 collaborating PIs. The EC will be collectively responsible for administrative and programmatic oversight of all of Project TIER's ongoing activities; conceiving of and implementing new initiatives; and setting the priorities that will guide the development of Project TIER in the future. Individual members will also take on defined roles in specific areas where they have special interest or expertise. The EC will meet three times per year, twice by video-conference, and once at an in-person Annual Meeting. Frequent additional communication among members of the EC will take place between these formal meetings.

## **II. Broader Impacts: Lessons from Teaching Reproducible Research Methods May Trickle Up to Professional Practice**

In the early 2010's, when Ball and Medeiros began confronting the lack of transparency in their students' research papers, similar concerns were being voiced among professional researchers in the natural and social sciences, and initiatives to

promote transparency in professional research (e.g., BITSS and COS) emerged at about the same time as Project TIER.

The protocols and curriculum developed by Project TIER are not intended to serve as standards for professional researchers; they are intended explicitly for education and training purposes. Some requirements included in TIER guidelines serve important pedagogical purposes, but would not be appropriate for professional scholarship.

Nonetheless, Project TIER does illustrate vividly the ways in which reliable and comprehensive replication documentation can enhance transparency and facilitate precise and efficient communication—of the kind between student and advisor discussed in section I-A-1. Participants at Faculty Development Workshops frequently apply that their experiences there not only provided them with strategies for teaching research methods to their students, but also led them to revamp their own research workflows. As one of the reviewers of the Ball & Medeiros (2012) paper commented in the referee report, "While outside the purpose of this paper, I feel, and the author(s) document, that many practicing economists would find this work of interest as well for their own empirical research."

So although the direct impacts of Project TIER are through instructors and their students, it is also producing a "trickle up" to professional practice.

In this way, this proposal responds to the September 2016 "Dear Colleague" letter issue by the NSF SBE Directorate on "Robust and Reliable Research in the Social, Behavioral, and Economic Sciences" (NSF 16-137). (Though it is recognized that the program to which this proposal is submitted does not fall under the purview of the SBE Directorate.)

## **References Cited**

Ball, Richard & Medeiros, Norm (2012). "Teaching Integrity in Empirical Research: A Protocol for Documenting Data Management and Analysis." *Journal of Economic Education*, 43(2): 182-189.

Cook, Fay Lomax (September 20, 2016). "Dear Colleague Letter: Robust and Reliable Research in the Social, Behavioral, and Economic Sciences." NSF Directorate for Social, Behavioral & Economic Sciences.

[https://www.nsf.gov/pubs/2016/nsf16137/nsf16137.jsp?WT.mc\\_id=USNSF\\_25&WT.mc\\_ev=click](https://www.nsf.gov/pubs/2016/nsf16137/nsf16137.jsp?WT.mc_id=USNSF_25&WT.mc_ev=click)

**Richard Ball**  
**Professor of Economics**  
**Haverford College**

### **Professional Preparation**

<u>Undergraduate Institution</u>	<u>Location</u>	<u>Major</u>	<u>Degree &amp; Year</u>
Williams College	Williamstown, MA	Cultural Anthropology and African Studies	B.A., 1984
<u>Graduate Institution</u>	<u>Location</u>	<u>Major</u>	<u>Degree &amp; Year</u>
Michigan State Univ.	East Lansing, MI	Agricultural Economics	M.Sc., 1988
Univ. of California, Berkeley	Berkeley, CA	Agricultural and Resource Economics	Ph.D., 1993

### **Appointments**

Haverford College, Haverford, PA, Professor of Economics, 2017-

Haverford College, Haverford, PA, Associate Professor of Economics, 1999-2017

Haverford College, Haverford, PA, Assistant Professor of Economics, 1993-1999

### **Products closely related to proposed project**

1. The TIER Protocol. Guidelines for conducting and documenting quantitative research to ensure reproducibility, designed for undergraduate research documenting quantitative research: <https://www.projecttier.org/tier-protocol/>
2. "Income, Happiness and the Midlife Crisis." A demo project for teaching and learning the TIER Protocol, consisting of a short empirical article accompanied by complete replication documentation, as specified by the TIER Protocol: <https://www.projecttier.org/tier-protocol/demo-project/>
3. Ball, R.J. & Medeiros N. (2012). Teaching Integrity in Empirical Research: A Protocol for Documenting Data Management and Analysis. *Journal of Economic Education*, 43(2), 182-189.
4. Medeiros, N. & Ball, R.J. (2017). Teaching Integrity in Empirical Economics: The Pedagogy of Reproducible Science in Undergraduate Education. In Hensley, M.K. & Davis-Kahl, S. (eds.), *Undergraduate Research and the Academic Librarian: Case Studies & Best Practices* (Chicago: Association of College & Research Libraries).

### **Other significant products**

1. Ball, R. (2017). "Violations of monotonicity in evolutionary models with sample-based beliefs." *Economics Letters*, 152, 100-104.
2. Ball, R. (2010). "Culture and Public Policy: The Case of Foreign Aid." *Quarterly Review of Economics and Finance*, 50(1), 3-16.

3. Ball, R. and Chernova, K. (2008). "Absolute Income, Relative Income and Happiness. *Social Indicators Research*, 88, 497-529.
4. Ball, R. (2001). "Individualism, Collectivism and Economic Development." *Annals of the American Academy of Political and Social Science*, 573, 57-84.
5. R. Ball (1999). "Discontinuity and Non-Existence of Equilibrium in a Probabilistic Spatial Voting Model." *Social Choice and Welfare*, 16(4), 533-556.

### **Synergistic activities**

1. Instructor of introductory statistics courses for undergraduates since 1993. Development over many years of workflows and documentation standards specifically designed for undergraduate research, and of pedagogical strategies for introducing them to students. The tools developed in this context were the original basis of Project TIER.
2. Founder and Director of Project TIER (jointly with N. Medeiros), 2013-
3. Frequent presentations on reproducible research at meetings of professional societies. *Selected examples:* American Political Science Association Annual Meetings (2018); American Economic Association Annual Conference on Teaching and Research in Economic Education (CTREE; 2011, 2016, 2018); Society for Neuroscience (2017); ICPSR Summer Program in Quantitative Methods Blalock Lectures (2013, 2017); American Economic Association Annual Meetings (2015, 2016); Southern Political Science Association (2014).
4. Invited speaker and instructor at workshops and trainings on reproducible research. *Selected examples:* "The Gold Standard of Reproducible Research," Nottingham Interdisciplinary Centre for Political and Economic Research, University of Nottingham, UK, (2017); "Integrity in Empirical Economic Research," Institute for New Economic Thinking/Young Scholar's Initiative, Workshop on Replication and Transparency in Economic Research, San Francisco (2016); BITSS Summer Institute on Transparency Practices in the Social Sciences, UC Berkeley (joint with Norm Medeiros, 2014).
5. Two-day NSF workshop on "Robust Research in the Social, Behavioral, and Economic Sciences," February 2014. Panelist at a session on "Education and Training." This workshop was convened by the SBE AC Subcommittee on Replication, and led to the report "Social, Behavioral, and Economic Sciences Perspectives on Robust and Reliable Science: Report of the Subcommittee on Replicability in Science, Advisory Committee to the National Science Foundation Directorate for Social, Behavioral, and Economic Sciences" (May 2015).

## Nicole Janz, PhD

School of Politics and International Relations | University of Nottingham  
University Park NG7 2RD | United Kingdom| Nicole.Janz@nottingham.ac.uk  
T: +44 (0)115 84 86345

### Professional Preparation

Undergraduate	Free University of Berlin (Germany)	History and North American Studies	Magistra Artium (2008)
Graduate	University of Cambridge (United Kingdom)	Politics and International Studies	PhD (2015)

### Appointments

#### 1. Assistant Professor in International Relations (with Quantitative Methods)

University of Nottingham, School of Politics and International Relations (2016–)

#### 2. Research Methods Teaching Associate

University of Cambridge, Social Sciences Research Methods Centre (2014–2016)

#### 3. Temporary Lecturer in Research Methods

University of Cambridge, Social Sciences Research Methods Centre (2012–2014)

### Products

#### *Most closely related to proposal project*

1. Nicole Janz (2016). "Bringing the Gold Standard into the Classroom: Replication in University Teaching." *International Studies Perspectives* 17(4): 392–407. doi:10.1111/insp.12104
2. Nils Petter Gleditsch, and Nicole Janz (2016). "Replication in International Relations." *International Studies Perspectives* 17(4): 361–366. doi:10.1093/isp/ekv003
3. Joseph K. Young, and Nicole Janz (2015) "What Social Science Can Learn From the LaCour Scandal", *The Chronicle of Higher Education* June 3, 2015. URL: <https://www.chronicle.com/article/What-Social-Science-Can-Learn/230645>
4. Nicole Janz, Seth Werfel, and Stephanie Wykstra (2014) "Replication in Political Science Graduate Courses: an Untapped Resource?" *Monkey Cage - The Washington Post*. February 12, 2014. URL: <http://www.washingtonpost.com/blogs/monkey-cage/wp/2014/02/12/replication-in-political-science-graduate-courses-an-untapped-resource/>
5. Founder of Academic blog: **Political Science Replication Blog** (2013–) URL: <https://politicalsciencereplication.wordpress.com/>

#### *Other significant products*

6. Krishna C. Vadlamannati, Nicole Janz, and Øyvind I. Berntsen (2018). "Human Rights Shaming and FDI: Effects of the UN Human Rights Commission and Council." *World Development*: 104, 222-237. doi:10.1016/j.worlddev.2017.11.014
7. Nicole Janz (2018). "Foreign Direct Investment and Repression: An Analysis Across Industry Sectors, *Journal of Human Rights*, 17:2, 163-183, doi:10.1080/14754835.2017.1306691

## **Synergistic Activities**

### *Innovations in teaching and training*

#### **1. Replication Workshop, University of Cambridge, 2013-2016**

(<https://doi.org/10.7910/DVN/29420>)

- Innovation: Social Science students took eight weeks to replicate a published article; first replication workshop of this kind in the UK
- Goal: Teaching statistics with real-life data and a strong research focus; establishing a transparency culture among students
- Outcome: Several students have published their replication in a peer-reviewed journal; publication of a pedagogical article about this innovation

### *Development of databases to support research and education*

#### **2. ReplicationWiki**

(<http://replication.uni-goettingen.de/>)

- Innovation: Online database that contains classification of published journal articles according to transparency standards (data upload, code upload, software used, has the article been replicated later)
- Goal: Improving transparency standards in the social sciences; usage of database for teachers to find suitable data for the classroom
- Outcome: thousands of articles classified in economics; planned extension to include more political science articles led by Nicole Janz

### *Transfer of knowledge*

#### **3. Promoting government and research transparency in Brazil**

(<https://tinyurl.com/ycstx8rj>)

- Innovation: Collection of new data on corruption from Brazilian agencies, funded by British Academy
- Goal: Encourage government and researchers in Brazil to make data sources more readily available; strengthen research skills and transparency norms that can contribute to innovation, development, and ultimately social welfare
- Outcome: preparation of novel study on corruption determinants; preparation of website and app to map local corruption occurrence; several workshops for and policy makers in Brazil

**Norm Medeiros**

**Associate Librarian & Coordinator for Collection Management and Metadata Services  
Haverford College**

**Professional Preparation**

<u>Undergraduate Institution</u>	<u>Location</u>	<u>Major</u>	<u>Degree &amp; Year</u>
University of Massachusetts Dartmouth	Dartmouth, MA	English (Writing & Communication)	B.A., 1993
<u>Graduate Institution</u>	<u>Location</u>	<u>Major</u>	<u>Degree &amp; Year</u>
University of Rhode Island	Kingston, RI	Library & Information Studies	M.L.I.S., 1995

**Appointments**

Haverford College, Haverford, PA, Associate Librarian & Coordinator for Collection Management and Metadata Services, 2000-

New York University School of Medicine, New York, NY, Technical Services Librarian, 1997-2000

Hartwick College, Oneonta, NY, Technical Services Librarian, 1995-1997.

**Products (closely related to proposed project)**

1. Project TIER web site: <https://www.projecttier.org>
2. Project TIER Dataverse: <https://dataverse.harvard.edu/dataverse/TIER>
3. Project TIER version 3.0 template on OSF: <https://osf.io/ybzxe/>
4. Ball, R.J. & Medeiros N. (2012). Teaching Integrity in Empirical Research: A Protocol for Documenting Data Management and Analysis. *Journal of Economic Education*, 43(2), 182-189.
5. Medeiros, N. & Ball, R.J. (2017). Teaching Integrity in Empirical Economics: The Pedagogy of Reproducible Science in Undergraduate Education. In Hensley, M.K. & Davis-Kahl, S. (eds.), *Undergraduate Research and the Academic Librarian: Case Studies & Best Practices* (Chicago: Association of College & Research Libraries).

**Synergistic Activities**

1. Medeiros, N. (2018, May). *Trickle Up Transparency: Teaching Reproducible Methods to Undergraduates*. Presentation at the 2018 IASSIST/CARTO Annual Conference, Montreal, Canada.

2. Ball, R.J. & Medeiros, N. (2018, January). *Documenting Quantitative Research for Transparency and Reproducibility: Principles and Standards*. Workshop in Methods, Indiana University, Social Science Research Commons.
3. Medeiros, N. (2017, June). *Promoting Open Science throughout the Research Lifecycle: The Integrative Role of Libraries*. Invited keynote presentation at the 2017 Ex Libris Bluegrass Users Group Meeting, Bowling Green, KY.
4. Development of the Project TIER Dataverse, which showcases reproducible undergraduate student work from Haverford College, Colgate University, Hamilton College, and Union College.
5. Development of OSF projects for use by undergraduate students in research methods courses at Haverford College (Economics 203, 204, and 396) and Bryn Mawr College (Sociology 265 and Economics 253).

## Michael O'Hara

St. Lawrence University  
Department of Economics  
23 Romoda Drive  
Canton, NY 13617

Office phone number: (315) 229 1887  
Email: [mohara@stlawu.edu.edu](mailto:mohara@stlawu.edu.edu)  
[www.stlawu.edu/people/michael-ohara](http://www.stlawu.edu/people/michael-ohara)

### (a) Professional preparation

Boston University, Boston, MA	Economics	B.A.	1992
Boston University, Boston, MA	Economics	M.A.	2005
Binghamton University, Binghamton, NY	Economics	Ph.D.	2007

### (b) Appointments

2017-present	Assistant Professor of Economics, St. Lawrence University, Canton, NY
2016- 2017	Visiting Assistant Professor of Economics, Hamilton College, Clinton, NY
2008-2016	Assistant Professor of Economics, Colgate University, Hamilton, NY
2007- 2008	Visiting Assistant Professor of Economics, Colgate University, Hamilton, NY

### (c) Products

#### (i) products most closely related to proposal project

1. “Teaching hypothesis testing with simulated distributions”. Forthcoming in International Review of Economic Education. Published online May 31, 2018. <https://doi.org/10.1016/j.iree.2018.05.005>
2. “Pulling econometrics students up by their bootstraps”, Journal of Economic Education, Vol. 45 (2): 121-130. 2014

#### (ii) other significant products

1. “Carbon efficiency of US colleges and universities: A nonparametric assessment” (with Philip Sirianni), Applied Economics 49(11): 1083 – 1097. 2017.
2. “Do actions speak as loud as words? Commitments to ‘going green’ on campus” (with Philip Sirianni). Contemporary Economic Policy 32(2): 503 – 519. 2014.
3. “Empirical identification of perceived congestion”. Empirical Economics, 45(3): 1167 – 1187. 2013.
4. “Nonparametric generalized least squares in applied regression analysis” (with Christopher Parmeter), Pacific Economic Review, 18(4): 456 – 474. 2013.

### (d) Synergistic Activities

1. Developed and taught curriculum on reproducible research methods at three undergraduate liberal arts universities.
2. Presented on issues of teaching reproducibility to undergraduates at conferences of the Association for Integrity in Integrity and Responsible Leadership in Economics and Associated Professions (AIRLEAP), American Economic Association Conference on Teaching and Research in Economic Education (CTREE), and New York State Economic Association (NYSEA).
3. Partner (2014 – present) and Fellow (2015 – 2016) in the Teaching Integrity in Empirical Research (TIER) Project
4. Recipient of Colgate University Torch Medal in recognition of the positive impact and personal influence on graduating members of the senior class, 2013-2016
5. Board of Directors, New York State Economic Association; Member of US Society for Ecological Economics, Association of Environmental and Resource Economists, American Economic Association, and Western Economic Association.

**(a) Professional Preparation**

Universidad Central de Venezuela Caracas, Venezuela B.A. in Economics 1998  
University of California San Diego, San Diego CA, USA PhD in Economics 2005

**(b) Appointments**

Associate Professor & Chair, Department of Economics California State University Fresno (2017- present)  
Associate Professor, Department of Economics California State University Fresno (2015- 2017)  
Assistant Professor, Department of Economics California State University Fresno (2011- 2015)  
Assistant Professor, Department of Economics Kent State University (2005- 2011)

**(c) Publications**

- Kim, G., & Vera, D. (2018). Recent drivers of the real oil price: Revisiting and extending Kilian's (2009) findings. *Forthcoming Energy Economics*.
- Osada, T., Onji, K., & Vera, D. (2017). Banks Restructuring Sonata: How Capital Injection Triggered Labor Force Rejuvenation in Japanese Banks. *The BE Journal of Economic Analysis & Policy*, 17(2).
- Van Vleck, V. N. L., & Vera, D. (2017). Cops and/or courts? A heterogeneous panel Granger-causality analysis of DUI in California. *International Journal of Social Economics*, 44(3), 286-311.
- Vera, D. (2016). The Effect of New Mortgage-Underwriting Rule on Community (Smaller) Banks' Mortgage Activity. *Journal of Applied Business and Economics*, 18(6), 101-111.
- Vera, D., Onji, K., & Gai, P. (2014). Are all financial crises created equal? Wholesale funding and two financial crises. *Applied Economics*, 46(27), 3284-3299.

**(d) Synergies**

- Organizer and Presenter, Project TIER Faculty Development Workshop on "Teaching transparent methods of empirical research," UCLA, March 2018
- Journal referee for: *American Economic Review*, *Applied Economics*, *Journal of Economics and Finance*, *The Manchester School*, *Journal of Macroeconomics*, *Contemporary Economic*.
- Participant, Project TIER Faculty Development Workshop, Haverford College, November 2016.
- Hoyt, G., Imazeki, J., Kassis, M., and Vera, D. (2010). Interactive large enrollment economics classes. *Teaching innovations in economics: Strategies and applications for interactive instruction*, edited by Michael K. Salemi and William B. Walstad. Cheltenham, UK and Northampton, MA: Edward Elgar, 220-42.

## **Simon D. Halliday**

Smith College  
Department of Economics  
21 Elm Street  
Northampton, MA 01063

Office phone number: (413) 275 3252

Email: [shalliday@smith.edu](mailto:shalliday@smith.edu)  
[simondhalliday.com](http://simondhalliday.com)

### **(a) Professional preparation**

University of Cape Town, Cape Town, RSA  
University of Siena, Siena, SI, Italy

Economics & English	B. Soc. Sci.	2003
Economics	B. Com (Hons)	2004
Economics	M.Com	2006
Creative Writing	MA	2007
Economics	Ph.D.	2012

### **(b) Appointments**

2013 – present	Assistant Professor of Economics, Smith College, Northampton, MA
2011– present	Research Affiliate, Southern African Labour and Development Research Unit (SALDRU), University of Cape Town, Cape Town, RSA
2012 – present	Research Affiliate, LabSi, Experimental Economics Laboratory, University of Siena, Siena, Italy.
2011- 2013	Lecturer in Economics, Royal Holloway, University of London, Egham, Surrey, UK
2006 - 2011	Ad Hoc Economics Instructor, University of Cape Town, Cape Town, RSA

### **(c) Products**

(i) products most closely related to proposal project

1. "Data Literacy and Economic Development", forthcoming at *The Journal of Economic Education*.

(ii) other significant products

1. "The hidden benefits of abstaining from control", (with Gabriel Burdin and Fabio Landini), 2018, *Journal of Economic Behavior and Organization*, Vol. 147, March,
2. *Microeconomics: Conflict, Coordination and Competition*, (with Samuel Bowles), Oxford University Press, Oxford, UK, Forthcoming 2019.
3. "Global Public Goods", 2014, in *Running the Economy*, Santos et al (eds). Open University Press, UK.

### **(d) Synergistic Activities**

1. Developed and taught curriculum on reproducible research methods at a liberal arts college in three separate courses.
2. Presented on issues of teaching reproducibility to undergraduates at conferences of the Association for Integrity in Integrity and Responsible Leadership in Economics and Associated Professions (AIRLEAP), American Economic Association Conference on Teaching and Research in Economic Education (CTREE), and Southern Economic Association (SEA) meetings.
3. Facilitated a series of workshops for graduate students at the University of Cape Town on integrity in research and research reproducibility. February-March 2017.
4. Fellow (2016 – 2017) in the Teaching Integrity in Empirical Research (TIER) Project.
5. Workshop instructor for TIER workshop, Occidental College, January 2017.

**F. BIOGRAPHICAL SKETCH**  
**Matthew C. Ingram**

**(a) Professional Preparation:**

Pomona College	Claremont, CA	Science & Feminism	B.A., 1993
University of New Mexico	Albuquerque, NM	Political Science	M.A., 2006
University of New Mexico	Albuquerque, NM	Law	J.D., 2006
University of New Mexico	Albuquerque, NM	Political Science	Ph.D., 2009
University of California, San Diego	La Jolla, CA	Postdoctoral Fellow	2009-2010
University of Notre Dame	South Bend, IN	Postdoctoral Fellow	2011-2012

**(b) Appointments:**

2017-present	Associate Professor, Political Science, University at Albany, State University of New York (SUNY Albany)
2012-2017	Assistant Professor, Political Science, University at Albany, State University of New York (SUNY Albany)
2017-present	Affiliated Faculty, College of Emergency Preparedness, Homeland Security, and Cybersecurity, SUNY Albany
2014-present	Research Associate, Center for Social and Demographic Analysis, SUNY Albany
2010-2011	Assistant Professor, Political Science, Univ. of Massachusetts, Dartmouth

**(c-i) Publications Closely Related to Proposed Research:**

Ingram, Matthew C., and Imke Harbers. Forthcoming. “Spatial Tools for Case Selection: Using LISA Statistics to Design Mixed-Methods Research.” *Political Science Research & Methods* (conditionally accepted Nov. 5, 2018).

- Publication conditioned on providing full set of replication materials and successful replication of core results. Replication materials provided Nov. 9, 2018.

Harbers, Imke, and Matthew C. Ingram. 2017. “Geo-Nested Analysis: Mixed Methods Research with Spatially Dependent Data.” *Political Analysis* 25(3): 289-307. DOI: <https://doi.org/10.1017/pan.2017.4>

- Publication conditioned on providing full set of replication materials and successful replication of core results. Replication materials published on journal’s dataverse:  
<https://doi.org/10.7910/DVN/HRLHA4>

Ingram, Matthew C. 2016. “Mandates, Geography, and Networks: Diffusion of Criminal Procedure Reform in Mexico.” *Latin American Politics & Society* 58(1): 121-145.

- Replication material published on journal’s dataverse: <https://doi.org/10.7910/DVN/8W0PXP>

**(c-ii) Other Significant Publications:**

Ingram, Matthew C. 2016. *Crafting Courts in New Democracies: The Politics of Subnational Judicial Reform in Brazil and Mexico*. Cambridge, UK: Cambridge University Press.

Ingram, Matthew C. 2016. “Networked Justice: Judges, the Diffusion of Ideas, and Legal Reform Movements in Mexico” *Journal of Latin American Studies* 48(4): 739-768.

Burghardt, Keith, Christopher Verzijl, Junming Huang, Matthew C. Ingram, Binyang Song, and Marie Pierre Hasne. 2016. “Testing Modeling Assumptions in the West Africa Ebola Outbreak”. *Scientific*

*Reports* 6, Article number: 34598.

Ingram, Matthew C. 2013. "Elections, Ideology, or Opposition? Assessing Competing Explanations of Judicial Spending in the Mexican States." *Journal of Law, Economics and Organization* 29(1): 178-209.

**(d) Synergistic Activities**

TIER Fellow, Project TIER (Teaching Integrity in Empirical Research), Haverford College, PA (2018-2019).

OER Fellow (Open Educational Resources), University at Albany, SUNY (2018).

Principal Investigator for evaluation of juvenile justice reforms implemented under USAID Youth Empowerment Services (YES) in Caribbean, 2016-2018.

Survey design for large-scale assessment of criminal procedure in Mexico as part of the "Mexico Rule of Law Program" at the U.S. Agency for International Development (USAID), 2011.

New workshops and course development: Computing Tools for Workflow and Research Transparency (series of four 3-hour workshops), Spatial Analysis (RPOS 619 at University at Albany, SUNY) and online undergraduate course in research methods (RPOS 316). RPOS 619 had never been taught before in department or college. RPOS 316 had never been taught online.

**SUMMARY  
PROPOSAL BUDGET**

YEAR 1

		FOR NSF USE ONLY			
		PROPOSAL NO.		DURATION (months)	
		Proposed		Granted	
		AWARD NO.			
ORGANIZATION <b>Haverford College</b>					
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Richard Ball</b>					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months		Funds Requested By proposer	
		CAL	ACAD	SUMR	Funds granted by NSF (if different)
1. <b>Richard J Ball - PI</b>		0.00	3.60	2.00	<b>82,494</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	3.60	2.00	<b>82,494</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>1</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	12.00	0.00	<b>65,000</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>147,494</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>39,002</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>186,496</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>55,055</b>
2. INTERNATIONAL					<b>7,675</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>20,600</b>					
3. SUBSISTENCE <b>11,900</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>98</b> )					<b>32,500</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>2,000</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>6,000</b>
3. CONSULTANT SERVICES					<b>62,153</b>
4. COMPUTER SERVICES					<b>20,000</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>28,000</b>
TOTAL OTHER DIRECT COSTS					<b>118,153</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>399,879</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>salaries (Rate: 58.0000, Base: 147494)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>85,547</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>485,426</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>485,426</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Richard Ball</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Frances Rose Blase</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

1 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 2

		FOR NSF USE ONLY			
ORGANIZATION		PROPOSAL NO.		DURATION (months)	
<b>Haverford College</b>				Proposed	Granted
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR		AWARD NO.			
<b>Richard Ball</b>					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months			Funds Requested By proposer
		CAL	ACAD	SUMR	Funds granted by NSF (if different)
1. <b>Richard J Ball - PI</b>		0.00	3.60	2.00	<b>84,556</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	3.60	2.00	<b>84,556</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>1</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	12.00	0.00	<b>66,625</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>151,181</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>47,373</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>198,554</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>55,905</b>
2. INTERNATIONAL					<b>7,675</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>20,600</b>					
3. SUBSISTENCE <b>11,900</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>98</b> )				TOTAL PARTICIPANT COSTS	<b>32,500</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>6,000</b>
3. CONSULTANT SERVICES					<b>68,335</b>
4. COMPUTER SERVICES					<b>20,000</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>25,000</b>
TOTAL OTHER DIRECT COSTS					<b>119,335</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>413,969</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>salaries (Rate: 58.0000, Base: 151181)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>87,685</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>501,654</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>501,654</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Richard Ball</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Frances Rose Blase</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

2 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 3

		FOR NSF USE ONLY		
ORGANIZATION <b>Haverford College</b>		PROPOSAL NO.		DURATION (months)
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Richard Ball</b>		AWARD NO.		Proposed      Granted
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months		Funds Requested By proposer
		CAL	ACAD	Funds granted by NSF (if different)
1. <b>Richard J Ball - PI</b>		0.00	3.60	2.00
2.				
3.				
4.				
5.				
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	3.60	2.00
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)				
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00
2. ( <b>1</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	12.00	0.00
3. ( <b>0</b> ) GRADUATE STUDENTS				0
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS				0
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				0
6. ( <b>0</b> ) OTHER				0
TOTAL SALARIES AND WAGES (A + B)				<b>154,961</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				<b>48,557</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				<b>203,518</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)				
TOTAL EQUIPMENT				<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)				<b>56,755</b>
2. INTERNATIONAL				<b>7,675</b>
F. PARTICIPANT SUPPORT COSTS				
1. STIPENDS      \$ <b>0</b>				
2. TRAVEL <b>20,600</b>				
3. SUBSISTENCE <b>11,900</b>				
4. OTHER <b>0</b>				
TOTAL NUMBER OF PARTICIPANTS ( <b>98</b> )			TOTAL PARTICIPANT COSTS	<b>32,500</b>
G. OTHER DIRECT COSTS				
1. MATERIALS AND SUPPLIES				<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				<b>6,000</b>
3. CONSULTANT SERVICES				<b>68,207</b>
4. COMPUTER SERVICES				<b>20,000</b>
5. SUBAWARDS				<b>0</b>
6. OTHER				<b>27,000</b>
TOTAL OTHER DIRECT COSTS				<b>121,207</b>
H. TOTAL DIRECT COSTS (A THROUGH G)				<b>421,655</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>salaries (Rate: 58.0000, Base: 154961)</b>				
TOTAL INDIRECT COSTS (F&A)				<b>89,877</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				<b>511,532</b>
K. SMALL BUSINESS FEE				<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				<b>511,532</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$		
PI/PD NAME <b>Richard Ball</b>		FOR NSF USE ONLY		
		INDIRECT COST RATE VERIFICATION		
ORG. REP. NAME* <b>Frances Rose Blase</b>		Date Checked	Date Of Rate Sheet	Initials - ORG

3 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 4

		FOR NSF USE ONLY			
ORGANIZATION <b>Haverford College</b>		PROPOSAL NO.		DURATION (months)	
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Richard Ball</b>		AWARD NO.		Proposed      Granted	
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months		Funds Requested By proposer	
		CAL	ACAD	Funds granted by NSF (if different)	
1. <b>Richard J Ball - PI</b>		0.00	3.60	2.00	<b>88,837</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	3.60	2.00	<b>88,837</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>1</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	12.00	0.00	<b>69,998</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>158,835</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>49,771</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>208,606</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>56,755</b>
2. INTERNATIONAL					<b>7,675</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS      \$ <b>0</b>					
2. TRAVEL <b>20,600</b>					
3. SUBSISTENCE <b>11,900</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>98</b> )					<b>32,500</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>6,000</b>
3. CONSULTANT SERVICES					<b>51,251</b>
4. COMPUTER SERVICES					<b>20,000</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>27,000</b>
TOTAL OTHER DIRECT COSTS					<b>104,251</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>409,787</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>salaries (Rate: 58.0000, Base: 158835)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>92,124</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>501,911</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>501,911</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Richard Ball</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Frances Rose Blase</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

4 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

Cumulative

ORGANIZATION <b>Haverford College</b>		FOR NSF USE ONLY			
		PROPOSAL NO.		DURATION (months)	
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Richard Ball</b>		AWARD NO.			
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
		CAL	ACAD		
1. <b>Richard J Ball - PI</b>		0.00	14.40	8.00	<b>342,557</b>
2.					
3.					
4.					
5.					
6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	14.40	8.00	<b>342,557</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>4</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	48.00	0.00	<b>269,914</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>612,471</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>184,703</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>797,174</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>224,470</b>
2. INTERNATIONAL					<b>30,700</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>82,400</b>					
3. SUBSISTENCE <b>47,600</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>392</b> )					<b>130,000</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>2,000</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>24,000</b>
3. CONSULTANT SERVICES					<b>249,946</b>
4. COMPUTER SERVICES					<b>80,000</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>107,000</b>
TOTAL OTHER DIRECT COSTS					<b>462,946</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>1,645,290</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)					
TOTAL INDIRECT COSTS (F&A)					<b>355,233</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>2,000,523</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>2,000,523</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Richard Ball</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Frances Rose Blase</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

C \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

## **Budget Justification, YEAR 1 = \$485,426**

### **Salary for Senior Personnel = \$82,494**

Support for two summer months of salary (\$29,462) and 3.6 academic year months of salary (\$53,032) for PI Richard J. Ball. The PI is aware of the NSF policy limiting NSF support for senior personnel to two months in any year. For the purpose of this restriction, Haverford College defines a year as a 12 month period spanning Sept. 1 to Aug. 31.

### **Salary for Other Professionals = \$65,000**

Support for 12 academic year months for a Project Manager to oversee marketing, communications, workshop logistics, finances, assessment metrics, and scheduling.

### **Fringe benefits for Senior Personnel = \$22,167**

Two summer months of fringe benefits (\$29,462 @ 9%) and 3.6 academic year months of fringe benefits (\$53,032 @ 36.8%) for PI Richard J. Ball.

### **Fringe benefits for Other Professionals = \$16,835**

Fringe benefits (\$65,000 @ 25.9%) for 12 academic year months for the Project Manager.

### **Travel, Domestic = \$55,055**

Support for PIs Ball and Medeiros to attend relevant meetings related to teaching transparent and reproducible research methods; four faculty development workshops; one Faculty Fellows Conference; five project-based work events; one TIERFest Annual Gathering; and one Executive Board meeting.

#### **\* PI Travel Funds**

Support for PIs Ball (\$5,500) and Medeiros (\$5,500) to attend on average five relevant meetings per year. We use here and elsewhere an average of 2.5 nights of lodging, on the basis that most events will require 2 or 3 nights of lodging. We have found using a 2.5 estimate per event to be an accurate metric for budget purposes. The expenses for each meeting are calculated as follows:

Travel = \$500  
Lodging @ \$100/night for 2.5 nights each = \$250  
Registration fee = \$250  
Meals = \$100

#### **\* Faculty Development Workshops**

We plan to hold four faculty development workshops per year – two at Haverford College and two at participating institutions to serve regional participants. We anticipate 12 attendees at each workshop, which will run for one and one-half days. The expenses below are in support of instructional assistants, one at each workshop. Support for workshop attendees will be itemized under “Participant Support Costs.”

The assistant's expenses for each Haverford workshop are calculated as follows:

Assistant's travel = \$500  
Assistant's meals while traveling = \$100  
Assistant's lodging @ \$30/night for 2.5 nights each = \$75

The assistant's expenses for each external, non-Haverford workshop are calculated as follows:

Assistant's travel = \$500  
Assistant's meals while traveling = \$100  
Assistant's lodging @ \$100/night for 2.5 nights each = \$250

#### \* ***Faculty Fellows Conference***

We seek to award four TIER Faculty Fellowships annually to individuals who make sizeable contributions to Project TIER's mission. Each Fellow will receive \$1,500 in travel support to attend conferences and other events at which they represent and promote Project TIER. During June of each year, we seek to bring together at Haverford College for two days the incoming and outgoing Fellows to discuss their completed and anticipated activities. The expenses for this event are calculated as follows:

Travel for 8 @ \$500 each = \$4,000  
Lodging for 8 @ \$30/night for 2.5 nights = \$600  
Fellows travel support for 4 @ \$1,500 each = \$6,000  
Catering/meals for 10 attendees @ \$125/each = \$1,250

#### \* ***Curriculum Development Retreats***

We anticipate supporting five retreats per year, each consisting of in-person and virtual collaboration. To support the in-person portion of this program, we calculate the expenses for each retreat as follows:

Travel for 4 @ \$500 each = \$2,000  
Lodging for 4 @ \$100/night for 2.5 nights = \$1,000  
Catering/meals for 4 attendees @ \$125/each = \$500

#### \* ***TIERFest Annual Gathering***

We seek to hold an annual two day event at Haverford College that brings together diverse presentations on the many dimensions of reproducibility. The expenses for presenters are noted here. Support for attendees are itemized under "Participant Support Costs."

Travel for 12 presenters and 1 keynote speaker @ \$500 each = \$6,500  
Lodging for 12 presenters and 1 keynote speaker @ \$30/night for 2 nights each = \$780  
Meal for 12 presenters, 1 keynote speaker, and 7 Executive Board members @ \$60/each = \$1,200

#### \* ***Executive Board Meeting***

We expect to bring together the Executive Board annually at Haverford College for a one and one-half day business meeting. The expenses for this meeting are calculated as follows:

Travel for 4 Executive Board members @ \$500 each = \$2,000  
Lodging for 4 Executive Board members for 2.5 nights @ \$30/night = \$300  
Catering/Meals for 7 @ \$125/each = \$875

### **Travel, International = \$7,675**

#### \* ***PI Travel Funds***

Support for PI Janz, who is based in the UK, to attend on average five relevant meetings related to teaching transparent and reproducible research methods per year (\$5,500), and support for her attendance at the annual Executive Board Meeting (\$2,175, consisting of \$2,000 air travel, \$100 ground transportation, and \$75 lodging).

### **Participant Support Costs: Travel = \$20,600**

Support for four annual faculty development workshops.

**\* Faculty Development Workshops**

Participant expenses for each Haverford workshop are calculated as follows:

Ground transportation for 12 @ \$100 each = \$1,200  
Lodging for 12 @ \$30/night for 2.5 nights each = \$900  
Travel assistance fund = \$2,000

The expenses for each external, non-Haverford workshop are calculated as follows:

Ground transportation for 12 @ \$100 each = \$1,200  
Lodging for 12 @ \$100/night for 2.5 nights each = \$3,000  
Travel assistance fund = \$2,000

**Participant Support Costs: Subsistence = \$11,900**

Based on prior workshops we have organized at Haverford College and externally, we calculate catering/meal functions below.

**\* Faculty Development Workshops**

Catering for each of four one and one-half day workshops will feature one breakfast service, two lunch services, two coffee break services, and dinner the evening of day one. We calculate the expense for each workshop as follows:

Catering/meals for 14 attendees @ \$125/each = \$1,750

**\* TIERFest Annual Gathering**

We anticipate a total of 70 attendees at this annual two day event at Haverford College. Catering for this event will feature two breakfast services, two lunch services, and two coffee break services. We calculate the expense for this event as follows:

Catering for 70 @ \$70/each = \$4,900

**Materials/Supplies = \$2,000**

Funds to purchase a laptop for use by the Project Manager to carry out the duties of his/her position.

**Publication Costs = \$6,000**

These funds will support author payment charges to make open access two peer-reviewed articles generated from the project per year.

**Consultant Services = \$62,153**

These funds will be used to contract with Westat for assessing the efficacy of the project.

**Computer Services = \$20,000**

This allocation will support continued development of the Project TIER web site.

**Other Direct Costs – Other = \$28,000**

Stipends (\$5,000 each) for four TIER Faculty Fellows annually; \$1,000 stipends for five TIER Advisory Board members (year one only); \$500 stipends for 4 faculty development workshop assistants annually; \$1,000 stipend for the TIERFest Annual Gathering keynote speaker.

**Indirect costs = \$85,546**

This expense is drawn from the College's overhead rate of 58% on all salaries in our proposed budget.

**Budget Justification, YEAR 2 = \$501,654**

Unless otherwise noted, justifications for all items are the same as in Year 1.

**Salary for Senior Personnel = \$84,556****Salary for Other Professionals = \$66,625****Fringe benefits for Senior Personnel = \$22,721****Fringe benefits for Other Professionals = \$24,651****Travel, Domestic = \$55,905**

We add \$850 in travel support for one faculty development workshop instructor to train at one external workshop (\$500 travel, \$100 meals while traveling, \$250 lodging).

**Travel, International = \$7,675****Participant Support Costs: Travel = \$20,600****Participant Support Costs: Subsistence = \$11,900****Publication Costs = \$6,000****Consultant Services = \$68,335****Computer Services = \$20,000****Other Direct Costs – Other = \$25,000**

Stipends for Fellows (\$20,000), workshop assistants (\$2,000), workshop instructor (\$2,000), TIERFest Annual Gathering keynote speaker (\$1,000).

**Indirect costs = \$87,685****Budget Justification, YEAR 3 = \$511,532**

Unless otherwise noted, justifications for all items are the same as in Year 2.

**Salary for Senior Personnel = \$86,670****Salary for Other Professionals = \$68,291****Fringe benefits Senior Personnel = \$23,290****Fringe benefits for Other Professionals = \$25,268**

**Travel, Domestic = \$56,755**

We add \$850 in travel support for a second faculty development workshop instructor to train at the second external workshop (\$500 travel, \$100 meals while traveling, \$250 lodging).

**Travel, International = \$7,675****Participant Support Costs: Travel = \$20,600****Participant Support Costs: Subsistence = \$11,900****Publication Costs = \$6,000****Consultant Services = \$68,207****Computer Services = \$20,000****Other Direct Costs – Other = \$27,000**

We add \$2,000 to this allocation for a second faculty development workshop instructor stipend.

**Indirect costs = \$89,877****Budget Justification, YEAR 4 = \$501,911**

Unless otherwise noted, justifications for all items are the same as in Year 3.

**Salary for Senior Personnel = \$88,837****Salary for Other Professionals = \$69,998****Fringe benefits for Senior Personnel = \$23,872****Fringe benefits for Other Professionals = \$25,899****Travel, Domestic = \$56,755****Travel, International = \$7,675****Participant Support Costs: Travel = \$20,600****Participant Support Costs: Subsistence = \$11,900****Publication Costs = \$6,000****Consultant Services = \$51,251****Computer Services = \$20,000****Other Direct Costs – Other = \$27,000****Indirect costs = \$92,124**

**SUMMARY  
PROPOSAL BUDGET**

YEAR 1

ORGANIZATION <b>Saint Lawrence University</b>		FOR NSF USE ONLY			
		PROPOSAL NO.		DURATION (months)	
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Michael OHara</b>		AWARD NO.			
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
		CAL	ACAD		
1. <b>Michael E OHara - none</b>		0.00	0.00	2.00	<b>18,667</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	2.00	<b>18,667</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>18,667</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>7,467</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>26,134</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>5,500</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>0</b>					
3. SUBSISTENCE <b>0</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>0</b> )					<b>0</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>0</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>31,634</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>salaries, wages, and fringe base (Rate: 49.9000, Base: 26134)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>13,041</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>44,675</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>44,675</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Michael OHara</b>		FOR NSF USE ONLY			
ORG. REP. NAME* <b>Elizabeth Haney</b>		INDIRECT COST RATE VERIFICATION			
		Date Checked	Date Of Rate Sheet	Initials - ORG	

1 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 2

		FOR NSF USE ONLY			
ORGANIZATION		PROPOSAL NO.		DURATION (months)	
<b>Saint Lawrence University</b>				Proposed	Granted
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR		AWARD NO.			
<b>Michael OHara</b>					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months			Funds Requested By proposer
		CAL	ACAD	SUMR	Funds granted by NSF (if different)
1. <b>Michael E OHara - none</b>		0.00	0.00	2.00	<b>24,667</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	2.00	<b>24,667</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>24,667</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>9,867</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>34,534</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>5,500</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>0</b>					
3. SUBSISTENCE <b>0</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>0</b> )					<b>0</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>0</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>40,034</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>salaries, wages, and fringe base (Rate: 49.9000, Base: 34534)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>17,232</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>57,266</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>57,266</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Michael OHara</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Elizabeth Haney</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

2 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 3

		FOR NSF USE ONLY		
ORGANIZATION		PROPOSAL NO.		DURATION (months)
<b>Saint Lawrence University</b>				Proposed      Granted
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR		AWARD NO.		
<b>Michael OHara</b>				
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months		Funds Requested By proposer
		CAL	ACAD	Funds granted by NSF (if different)
1. <b>Michael E OHara - none</b>		0.00	0.00	<b>25,407</b>
2.				
3.				
4.				
5.				
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	<b>25,407</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)				
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS				<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS				<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				<b>0</b>
6. ( <b>0</b> ) OTHER				<b>0</b>
TOTAL SALARIES AND WAGES (A + B)				<b>25,407</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				<b>10,163</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				<b>35,570</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)				
TOTAL EQUIPMENT				<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)				<b>5,500</b>
2. INTERNATIONAL				<b>0</b>
F. PARTICIPANT SUPPORT COSTS				
1. STIPENDS      \$ <b>0</b>				
2. TRAVEL <b>0</b>				
3. SUBSISTENCE <b>0</b>				
4. OTHER <b>0</b>				
TOTAL NUMBER OF PARTICIPANTS ( <b>0</b> )		TOTAL PARTICIPANT COSTS		<b>0</b>
G. OTHER DIRECT COSTS				
1. MATERIALS AND SUPPLIES				<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				<b>0</b>
3. CONSULTANT SERVICES				<b>0</b>
4. COMPUTER SERVICES				<b>0</b>
5. SUBAWARDS				<b>0</b>
6. OTHER				<b>0</b>
TOTAL OTHER DIRECT COSTS				<b>0</b>
H. TOTAL DIRECT COSTS (A THROUGH G)				<b>41,070</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>salaries, wages, and fringe base (Rate: 49.9000, Base: 35570)</b>				
TOTAL INDIRECT COSTS (F&A)				<b>17,749</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				<b>58,819</b>
K. SMALL BUSINESS FEE				<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				<b>58,819</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$		
PI/PD NAME <b>Michael OHara</b>		FOR NSF USE ONLY		
		INDIRECT COST RATE VERIFICATION		
ORG. REP. NAME* <b>Elizabeth Haney</b>		Date Checked	Date Of Rate Sheet	Initials - ORG

3 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 4

ORGANIZATION <b>Saint Lawrence University</b>		FOR NSF USE ONLY			
		PROPOSAL NO.		DURATION (months)	
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Michael OHara</b>		AWARD NO.			
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
		CAL	ACAD		
1. <b>Michael E OHara - none</b>		0.00	0.00	2.00	<b>26,169</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	2.00	<b>26,169</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>26,169</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>10,468</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>36,637</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>5,500</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>0</b>					
3. SUBSISTENCE <b>0</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>0</b> )					<b>0</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>0</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>42,137</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>salaries, wages, and fringe base (Rate: 49.9000, Base: 36637)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>18,282</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>60,419</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>60,419</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Michael OHara</b>		FOR NSF USE ONLY			
ORG. REP. NAME* <b>Elizabeth Haney</b>		INDIRECT COST RATE VERIFICATION			
		Date Checked	Date Of Rate Sheet	Initials - ORG	

4 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

Cumulative

ORGANIZATION <b>Saint Lawrence University</b>		FOR NSF USE ONLY			
		PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Michael OHara</b>		AWARD NO.			
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
		CAL	ACAD	SUMR	
1. <b>Michael E OHara - none</b>		0.00	0.00	8.00	<b>94,910</b>
2.					
3.					
4.					
5.					
6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	8.00	<b>94,910</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>94,910</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>37,965</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>132,875</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>22,000</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>0</b>					
3. SUBSISTENCE <b>0</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>0</b> )					<b>0</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>0</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>154,875</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)					
TOTAL INDIRECT COSTS (F&A)					<b>66,304</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>221,179</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>221,179</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Michael OHara</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Elizabeth Haney</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

C \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

## Budget Justification

### **Senior Personnel:**

PI Michael O'Hara, Assistant Professor of Economics: Grant funding is requested for 2 months of summer salary in all years. The planned charges are calculated based on his current base salary in Year 1, a provision for a promotion to Associate Professor in Year 2 (average figure for associate professor salaries in economics department used as estimate of his salary), and a 3% annual salary increase in Years 3 and 4. At St. Lawrence University, PI O'Hara will oversee the scientific, technical, and budgetary aspects of the project as described in the proposal. He will also be responsible for reporting to the NSF (annual reports and regular NSF data collection activities).

### **Fringe Benefits:**

Fringe benefits are calculated at 40% for senior personnel (full benefits).

### **Domestic Travel:**

Conference Travel: \$5500 is requested each year for travel support for the PI to make 5 trips annually to attend relevant meetings related to teaching transparent and reproducible research methods.

Per-trip costs are estimated at \$1100, consisting of: \$500 for airfare; \$250 for lodging, \$250 for registration; and \$100 for meals and incidentals.

### **Indirect Costs:**

Indirect costs are calculated at St. Lawrence University's institutional rate of 49.9% of salaries and benefits.

**SUMMARY  
PROPOSAL BUDGET**

YEAR 1

		FOR NSF USE ONLY			
ORGANIZATION		PROPOSAL NO.		DURATION (months)	
<b>California State University-Fresno Foundation</b>				Proposed	Granted
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR		AWARD NO.			
<b>David Vera</b>					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months			Funds Requested By proposer
		CAL	ACAD	SUMR	Funds granted by NSF (if different)
1. <b>David Vera - PI</b>		0.00	0.00	2.00	<b>21,219</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	2.00	<b>21,219</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>21,219</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>2,122</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>23,341</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>5,500</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>0</b>					
3. SUBSISTENCE <b>0</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>0</b> )					<b>0</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>0</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>28,841</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>MTDC (Dept. of Health and Human Services) (Rate: 40.0000, Base: 28841)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>11,536</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>40,377</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>40,377</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>David Vera</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>James Marshall</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

1 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 2

		FOR NSF USE ONLY			
ORGANIZATION		PROPOSAL NO.		DURATION (months)	
<b>California State University-Fresno Foundation</b>				Proposed	Granted
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR		AWARD NO.			
<b>David Vera</b>					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months			Funds Requested By proposer
		CAL	ACAD	SUMR	Funds granted by NSF (if different)
1. <b>David Vera - PI</b>		0.00	0.00	2.00	<b>21,961</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	2.00	<b>21,961</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>21,961</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>2,196</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>24,157</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>5,500</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>0</b>					
3. SUBSISTENCE <b>0</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>0</b> )					<b>0</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>0</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>29,657</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>MTDC (Dept. of Health and Human Services) (Rate: 40.0000, Base: 29657)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>11,863</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>41,520</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>41,520</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>David Vera</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>James Marshall</b>		Date Checked	Date Of Rate Sheet		Initials - ORG

2 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 3

		FOR NSF USE ONLY			
ORGANIZATION		PROPOSAL NO.		DURATION (months)	
<b>California State University-Fresno Foundation</b>				Proposed	Granted
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR		AWARD NO.			
<b>David Vera</b>					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months			Funds Requested By proposer
		CAL	ACAD	SUMR	Funds granted by NSF (if different)
1. <b>David Vera - PI</b>		0.00	0.00	2.00	<b>22,730</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	2.00	<b>22,730</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>22,730</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>2,273</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>25,003</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>5,500</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>0</b>					
3. SUBSISTENCE <b>0</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>0</b> )					<b>0</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>0</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>30,503</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>MTDC (Dept. of Health and Human Services) (Rate: 40.0000, Base: 30503)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>12,201</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>42,704</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>42,704</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>David Vera</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>James Marshall</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

3 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 4

		FOR NSF USE ONLY			
ORGANIZATION		PROPOSAL NO.		DURATION (months)	
<b>California State University-Fresno Foundation</b>				Proposed	Granted
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR		AWARD NO.			
<b>David Vera</b>					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months			Funds Requested By proposer
		CAL	ACAD	SUMR	Funds granted by NSF (if different)
1. <b>David Vera - PI</b>		0.00	0.00	2.00	<b>23,526</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	2.00	<b>23,526</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>23,526</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>2,353</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>25,879</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>5,500</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>0</b>					
3. SUBSISTENCE <b>0</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>0</b> )					<b>0</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>0</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>31,379</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>MTDC (Dept. of Health and Human Services) (Rate: 40.0000, Base: 31379)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>12,552</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>43,931</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>43,931</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>David Vera</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>James Marshall</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

4 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

Cumulative

ORGANIZATION		FOR NSF USE ONLY				
		PROPOSAL NO.		DURATION (months)		
California State University-Fresno Foundation		Proposed		Granted		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR		AWARD NO.				
David Vera						
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months			Funds Requested By proposer	Funds granted by NSF (if different)
		CAL	ACAD	SUMR		
1. David Vera - PI		0.00	0.00	8.00	<b>89,436</b>	
2.						
3.						
4.						
5.						
6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>	
7. ( 1 ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	8.00	<b>89,436</b>	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)						
1. ( 0 ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>	
2. ( 0 ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>	
3. ( 0 ) GRADUATE STUDENTS					<b>0</b>	
4. ( 0 ) UNDERGRADUATE STUDENTS					<b>0</b>	
5. ( 0 ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>	
6. ( 0 ) OTHER					<b>0</b>	
TOTAL SALARIES AND WAGES (A + B)					<b>89,436</b>	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>8,944</b>	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>98,380</b>	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)						
TOTAL EQUIPMENT					<b>0</b>	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>22,000</b>	
2. INTERNATIONAL					<b>0</b>	
F. PARTICIPANT SUPPORT COSTS						
1. STIPENDS \$ 0						
2. TRAVEL 0						
3. SUBSISTENCE 0						
4. OTHER 0						
TOTAL NUMBER OF PARTICIPANTS ( 0 )					<b>0</b>	
G. OTHER DIRECT COSTS						
1. MATERIALS AND SUPPLIES					<b>0</b>	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>	
3. CONSULTANT SERVICES					<b>0</b>	
4. COMPUTER SERVICES					<b>0</b>	
5. SUBAWARDS					<b>0</b>	
6. OTHER					<b>0</b>	
TOTAL OTHER DIRECT COSTS					<b>0</b>	
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>120,380</b>	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)						
TOTAL INDIRECT COSTS (F&A)					<b>48,152</b>	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>168,532</b>	
K. SMALL BUSINESS FEE					<b>0</b>	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>168,532</b>	
M. COST SHARING PROPOSED LEVEL \$ 0		AGREED LEVEL IF DIFFERENT \$				
PI/PD NAME <b>David Vera</b>		FOR NSF USE ONLY				
		INDIRECT COST RATE VERIFICATION				
ORG. REP. NAME* <b>James Marshall</b>		Date Checked	Date Of Rate Sheet	Initials - ORG		

C \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**Budget Justification, YEAR 1 = \$40,377**

**Salary for Senior Personnel = \$21,219**

Support for two summer months of salary (\$21,219) for PI David Vera.

**Fringe benefits for Senior Personnel = \$2,122**

Two summer months of fringe benefits (\$21,219 @ 10%) for PI David Vera.

**Travel, Domestic = \$5,500**

Support for PI Vera to attend on average five relevant meetings per year. An average of 2.5 nights of lodging has been allocated, on the basis that most events will require 2 or 3 nights of lodging. The expenses for each meeting are calculated as follows:

Travel = \$500

Lodging @ \$100/night for 2.5 nights each = \$250

Registration fee = \$250

Meals = \$100

**Indirect costs = \$11,536**

Indirect costs have been calculated based on California State University, Fresno Foundation's federal negotiated indirect rate of 40%.

**Budget Justification, YEAR 2 = \$41,520**

Unless otherwise noted, justifications for all items are the same as in Year 1.

**Salary for Senior Personnel = \$21,961**

Support for two summer months of salary (\$21,961) for PI David Vera.

**Fringe benefits for Senior Personnel = \$2,196**

Two summer months of fringe benefits (\$21,961 @ 10%) for PI David Vera.

**Travel, Domestic = \$5,500**

Support for PI Vera to attend on average five relevant meetings per year. An average of 2.5 nights of lodging has been allocated, on the basis that most events will require 2 or 3 nights of lodging. The expenses for each meeting are calculated as follows:

Travel = \$500

Lodging @ \$100/night for 2.5 nights each = \$250

Registration fee = \$250

Meals = \$100

**Indirect costs = \$11,863**

Indirect costs have been calculated based on California State University, Fresno Foundation's federal negotiated indirect rate of 40%.

**Budget Justification, YEAR 3 = \$42,704**

Unless otherwise noted, justifications for all items are the same as in Year 2.

**Salary for Senior Personnel = \$22,730**

Support for two summer months of salary (\$22,730) for PI David Vera.

**Fringe benefits for Senior Personnel = \$2,273**

Two summer months of fringe benefits (\$22,730 @ 10%) for PI David Vera.

**Travel, Domestic = \$5,500**

Support for PI Vera to attend on average five relevant meetings per year. An average of 2.5 nights of lodging has been allocated, on the basis that most events will require 2 or 3 nights of lodging. The expenses for each meeting are calculated as follows:

Travel = \$500

Lodging @ \$100/night for 2.5 nights each = \$250

Registration fee = \$250

Meals = \$100

**Indirect costs = \$12,201**

Indirect costs have been calculated based on California State University, Fresno Foundation's federal negotiated indirect rate of 40%.

**Budget Justification, YEAR 4 = \$43,931**

Unless otherwise noted, justifications for all items are the same as in Year 3.

**Salary for Senior Personnel = \$23,526**

Support for two summer months of salary (\$23,526) for PI David Vera.

**Fringe benefits for Senior Personnel = \$2,122**

Two summer months of fringe benefits (\$23,526 @ 10%) for PI David Vera.

**Travel, Domestic = \$5,500**

Support for PI Vera to attend on average five relevant meetings per year. An average of 2.5 nights of lodging has been allocated, on the basis that most events will require 2 or 3 nights of lodging. The expenses for each meeting are calculated as follows:

Travel = \$500

Lodging @ \$100/night for 2.5 nights each = \$250

Registration fee = \$250

Meals = \$100

**Indirect costs = \$12,552**

Indirect costs have been calculated based on California State University, Fresno Foundation's federal negotiated indirect rate of 40%.

**SUMMARY  
PROPOSAL BUDGET**

YEAR 1

		FOR NSF USE ONLY			
		PROPOSAL NO.		DURATION (months)	
		Proposed		Granted	
		AWARD NO.			
ORGANIZATION <b>Smith College</b>					
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Simon Halliday</b>					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months			Funds Requested By proposer
		CAL	ACAD	SUMR	Funds granted by NSF (if different)
1. <b>Simon D Halliday - none</b>		0.00	0.00	1.50	<b>17,482</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	1.50	<b>17,482</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>17,482</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>3,007</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>20,489</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>12,100</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>4,500</b>					
3. SUBSISTENCE <b>6,000</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>10</b> )					<b>10,500</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>5,000</b>
TOTAL OTHER DIRECT COSTS					<b>5,000</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>48,089</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>Salary and Wages (Rate: 52.2000, Base: 17482)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>9,126</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>57,215</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>57,215</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Simon Halliday</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Emily Robinson</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

1 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 2

		FOR NSF USE ONLY			
		PROPOSAL NO.		DURATION (months)	
		Proposed		Granted	
		AWARD NO.			
ORGANIZATION <b>Smith College</b>					
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Simon Halliday</b>					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months			Funds Requested By proposer
		CAL	ACAD	SUMR	Funds granted by NSF (if different)
1. <b>Simon D Halliday - none</b>		0.00	0.00	1.00	<b>11,946</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	1.00	<b>11,946</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>11,946</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>2,114</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>14,060</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>5,500</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>0</b>					
3. SUBSISTENCE <b>0</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>0</b> )					<b>0</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>0</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>19,560</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>Salary and Wages (Rate: 52.2000, Base: 11946)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>6,236</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>25,796</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>25,796</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Simon Halliday</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Emily Robinson</b>		Date Checked	Date Of Rate Sheet		Initials - ORG

2 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 3

		FOR NSF USE ONLY			
ORGANIZATION <b>Smith College</b>		PROPOSAL NO.		DURATION (months)	
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Simon Halliday</b>		AWARD NO.		Proposed	Granted
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months			Funds Requested By proposer
		CAL	ACAD	SUMR	Funds granted by NSF (if different)
1. <b>Simon D Halliday - none</b>		0.00	0.00	1.50	<b>18,367</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	1.50	<b>18,367</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>18,367</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>3,343</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>21,710</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>12,100</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>8,100</b>					
3. SUBSISTENCE <b>10,800</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>18</b> )				TOTAL PARTICIPANT COSTS	<b>18,900</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>5,000</b>
TOTAL OTHER DIRECT COSTS					<b>5,000</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>57,710</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>Salary and Wages (Rate: 52.2000, Base: 18367)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>9,588</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>67,298</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>67,298</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Simon Halliday</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Emily Robinson</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

3 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 4

		FOR NSF USE ONLY			
		PROPOSAL NO.		DURATION (months)	
		Proposed		Granted	
		AWARD NO.			
ORGANIZATION <b>Smith College</b>					
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Simon Halliday</b>					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months		Funds Requested By proposer	
		CAL	ACAD	SUMR	Funds granted by NSF (if different)
1. <b>Simon D Halliday - none</b>		0.00	0.00	1.00	<b>12,551</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	1.00	<b>12,551</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>12,551</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>2,347</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>14,898</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>5,500</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>0</b>					
3. SUBSISTENCE <b>0</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>0</b> )					<b>0</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>0</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>20,398</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>Salary and Wages (Rate: 52.2000, Base: 12551)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>6,552</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>26,950</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>26,950</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Simon Halliday</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Emily Robinson</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

4 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

Cumulative

ORGANIZATION <b>Smith College</b>		FOR NSF USE ONLY			
		PROPOSAL NO.		DURATION (months)	
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Simon Halliday</b>		AWARD NO.			
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
		CAL	ACAD		
1. <b>Simon D Halliday - none</b>		0.00	0.00	5.00	<b>60,346</b>
2.					
3.					
4.					
5.					
6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	5.00	<b>60,346</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>60,346</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>10,811</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>71,157</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>35,200</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>12,600</b>					
3. SUBSISTENCE <b>16,800</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>28</b> )					<b>29,400</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>10,000</b>
TOTAL OTHER DIRECT COSTS					<b>10,000</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>145,757</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)					
TOTAL INDIRECT COSTS (F&A)					<b>31,502</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>177,259</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>177,259</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Simon Halliday</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Emily Robinson</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

C \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

## **Smith College**

### **Budget Justification**

#### **Personnel**

We request salary support for PI Simon Halliday at 1.5 summer months in years 1 and 3, and 1 summer month in years 2 and 4. In all four years, Dr. Halliday will be involved in developing instructional materials for the diversity workshops and faculty training workshops; Dr. Halliday will also be training undergraduate teach assistants and PhD students to assist in facilitating the workshops; during the first and third summers, Dr. Halliday will oversee and teach in the diversity workshops for undergraduates to be held on the Smith College campus. The budget includes a 2.5% salary increase in years 2-4. Fringe benefits are calculated at 17.2% in year 1 followed by a .5% increase/year.

#### **Travel**

##### ***PI Domestic Travel***

Support for PI Halliday to attend, on average, five relevant meetings per year. We calculate an average of 2.5 nights of lodging, on the basis that most events will require 2 or 3 nights of lodging. The expenses for each meeting are calculated as follows:

Travel = \$500  
Lodging @ \$100/day for 2.5 days each = \$250  
Registration fee = \$250  
Meals = \$100  
Total = \$5,500 per year

##### ***Diversity Workshop for Undergraduates: Instructors and Mentors***

In years 1 and 3, workshops will be held on the Smith College campus. Budget for 2 facilitating faculty instructors, 1 graduate student instructor, and 2 undergraduate mentors are as follows per workshop:

Lodging for 5 people for 5 days = \$2,850  
Meals for 5 people for 5 days = \$1,500  
Transportation for 5 people = \$2,250  
Total = \$6,600 per year in Years 1 and 3

#### **Participant Support Costs**

##### ***Participant Travel***

The budget includes \$4,500 in year 1 for 10 participants to travel to/from Smith College for the workshop @ \$450 each, and \$8,100 in year 3 for 18 participants to travel to/from Smith College @ \$450 each.

##### ***Participant Subsistence***

The budget includes \$6,000 in year 1 for 10 participants' lodging and meals on campus during the workshop. The costs are budgeted in accordance with rates set by the college's summer programs office @ \$300 each for on-campus lodging for 5 days, and \$300 each for on-campus meals for 5 days.

The budget includes \$10,800 in year 3 for 18 participants' lodging and meals on campus during the workshop. The costs are budgeted @ \$300 each for on-campus lodging for 5 days, and \$300 each for on-campus meals for 5 days.

**Other Direct Costs, Other**

Honoraria for diversity workshop facilitators are budgeted in years 1 and 3 at the following amounts per workshop: \$500 per undergraduate mentor (2), \$1500 per faculty instructor (1), and \$2500 per graduate student instructor (1).

**Indirect Costs**

Smith College federally negotiated indirect cost rate is 52.2% of salary and wages.

**SUMMARY  
PROPOSAL BUDGET**

YEAR 1

		FOR NSF USE ONLY			
		PROPOSAL NO.		DURATION (months)	
		Proposed		Granted	
		AWARD NO.			
ORGANIZATION <b>SUNY at Albany</b>					
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Matthew Ingram</b>					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months			Funds Requested By proposer
		CAL	ACAD	SUMR	Funds granted by NSF (if different)
1. <b>Matthew C Ingram - PI</b>		0.00	0.00	1.00	<b>12,177</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	1.00	<b>12,177</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>12,177</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>1,766</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>13,943</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
<b>Dell 24 Core Server, 192 GB RAM</b>			\$	<b>15,000</b>	
TOTAL EQUIPMENT					<b>15,000</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>11,000</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS    \$ <b>0</b>					
2. TRAVEL <b>0</b>					
3. SUBSISTENCE <b>0</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>0</b> )					<b>0</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>3,300</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>3,300</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>43,243</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>MTDC excluding Equipment (Rate: 53.0000, Base: 28243)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>14,969</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>58,212</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>58,212</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Matthew Ingram</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Daniel Whaley</b>		Date Checked	Date Of Rate Sheet		Initials - ORG

1 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 2

		FOR NSF USE ONLY			
ORGANIZATION		PROPOSAL NO.		DURATION (months)	
<b>SUNY at Albany</b>				Proposed	Granted
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR		AWARD NO.			
<b>Matthew Ingram</b>					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months			Funds Requested By proposer
		CAL	ACAD	SUMR	Funds granted by NSF (if different)
1. <b>Matthew C Ingram - PI</b>		0.00	0.00	1.50	<b>18,632</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	1.50	<b>18,632</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>1</b> ) GRADUATE STUDENTS					<b>1,500</b>
4. ( <b>2</b> ) UNDERGRADUATE STUDENTS					<b>1,000</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>1</b> ) OTHER					<b>2,500</b>
TOTAL SALARIES AND WAGES (A + B)					<b>23,632</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>3,800</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>27,432</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>17,861</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>11,400</b>					
3. SUBSISTENCE <b>10,960</b>					
4. OTHER <b>1,052</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>20</b> )		TOTAL PARTICIPANT COSTS			<b>23,412</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>300</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>300</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>69,005</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>MTDC excluding Participant Support (Rate: 53.0000, Base: 45593)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>24,164</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>93,169</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>93,169</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Matthew Ingram</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Daniel Whaley</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

2 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 3

		FOR NSF USE ONLY			
ORGANIZATION		PROPOSAL NO.		DURATION (months)	
<b>SUNY at Albany</b>				Proposed	Granted
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR		AWARD NO.			
<b>Matthew Ingram</b>					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months			Funds Requested By proposer
		CAL	ACAD	SUMR	Funds granted by NSF (if different)
1. <b>Matthew C Ingram - PI</b>		0.00	0.00	1.00	<b>12,669</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	1.00	<b>12,669</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>0</b> ) GRADUATE STUDENTS					<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS					<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>0</b> ) OTHER					<b>0</b>
TOTAL SALARIES AND WAGES (A + B)					<b>12,669</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>1,964</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>14,633</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>11,000</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>0</b>					
3. SUBSISTENCE <b>0</b>					
4. OTHER <b>0</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>0</b> )					<b>0</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>0</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>0</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>25,633</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>MTDC (Rate: 53.0000, Base: 25633)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>13,585</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>39,218</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>39,218</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Matthew Ingram</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Daniel Whaley</b>		Date Checked	Date Of Rate Sheet		Initials - ORG

3 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

YEAR 4

ORGANIZATION <b>SUNY at Albany</b>		FOR NSF USE ONLY			
		PROPOSAL NO.		DURATION (months)	
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Matthew Ingram</b>		AWARD NO.			
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
		CAL	ACAD		
1. <b>Matthew C Ingram - PI</b>		0.00	0.00	1.50	<b>19,385</b>
2.					
3.					
4.					
5.					
6. ( <b>0</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	1.50	<b>19,385</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>1</b> ) GRADUATE STUDENTS					<b>1,500</b>
4. ( <b>2</b> ) UNDERGRADUATE STUDENTS					<b>1,000</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>1</b> ) OTHER					<b>2,500</b>
TOTAL SALARIES AND WAGES (A + B)					<b>24,385</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>3,917</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>28,302</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)					
TOTAL EQUIPMENT					<b>0</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>18,564</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>12,569</b>					
3. SUBSISTENCE <b>12,084</b>					
4. OTHER <b>1,160</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>20</b> )					<b>25,813</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>300</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>300</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>72,979</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) <b>MTDC excluding Participant Support (Rate: 53.0000, Base: 47166)</b>					
TOTAL INDIRECT COSTS (F&A)					<b>24,998</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>97,977</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>97,977</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Matthew Ingram</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Daniel Whaley</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

4 \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

**SUMMARY  
PROPOSAL BUDGET**

Cumulative

ORGANIZATION <b>SUNY at Albany</b>		FOR NSF USE ONLY			
		PROPOSAL NO.		DURATION (months)	
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Matthew Ingram</b>		AWARD NO.			
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
		CAL	ACAD		
1. <b>Matthew C Ingram - PI</b>		0.00	0.00	5.00	<b>62,863</b>
2.					
3.					
4.					
5.					
6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00	0.00	0.00	<b>0</b>
7. ( <b>1</b> ) TOTAL SENIOR PERSONNEL (1 - 6)		0.00	0.00	5.00	<b>62,863</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS		0.00	0.00	0.00	<b>0</b>
2. ( <b>0</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)		0.00	0.00	0.00	<b>0</b>
3. ( <b>2</b> ) GRADUATE STUDENTS					<b>3,000</b>
4. ( <b>4</b> ) UNDERGRADUATE STUDENTS					<b>2,000</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					<b>0</b>
6. ( <b>2</b> ) OTHER					<b>5,000</b>
TOTAL SALARIES AND WAGES (A + B)					<b>72,863</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					<b>11,447</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					<b>84,310</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)		\$ <b>15,000</b>			
TOTAL EQUIPMENT					<b>15,000</b>
E. TRAVEL      1. DOMESTIC (INCL. U.S. POSSESSIONS)					<b>58,425</b>
2. INTERNATIONAL					<b>0</b>
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$ <b>0</b>					
2. TRAVEL <b>23,969</b>					
3. SUBSISTENCE <b>23,044</b>					
4. OTHER <b>2,212</b>					
TOTAL NUMBER OF PARTICIPANTS ( <b>40</b> )					<b>49,225</b>
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					<b>3,900</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					<b>0</b>
3. CONSULTANT SERVICES					<b>0</b>
4. COMPUTER SERVICES					<b>0</b>
5. SUBAWARDS					<b>0</b>
6. OTHER					<b>0</b>
TOTAL OTHER DIRECT COSTS					<b>3,900</b>
H. TOTAL DIRECT COSTS (A THROUGH G)					<b>210,860</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)					
TOTAL INDIRECT COSTS (F&A)					<b>77,716</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					<b>288,576</b>
K. SMALL BUSINESS FEE					<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					<b>288,576</b>
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>		AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME <b>Matthew Ingram</b>		FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION			
ORG. REP. NAME* <b>Daniel Whaley</b>		Date Checked	Date Of Rate Sheet	Initials - ORG	

C \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

## BUDGET JUSTIFICATION

### A Senior Personnel \$62,863

A1) Summer Salary is budgeted each year for Dr. Matthew Ingram, the principal investigator. When raises in our newly ratified union contract are in place Dr. Ingram's salary for academic year 18/19 will be \$107,447. Year 1's summer salary will take place after AY 19/20. At that time an additional 2% raise would bring AY salary to \$109,596. Since AY salary is based on nine months  $\$109,596/9 = \$12,177$ /month budgeted in Year 1.

Year 2 summer salary is based on AY 20/21 salary, which will be \$111,788.  $\$111,788/9 = \$12,421$ /month. 1.5 summer months are budgeted in Year 2 at  $1.5 \times \$12,421 = \$18,632$ .

Year 3 summer salary is based on AY 21/22 salary, which will be \$114,024.  $\$114,024/9 = \$12,669$ /month. One month is budgeted in Year 3.

Year 4 summer salary is based on AY 22/23 salary, which will be \$116,304.  $\$116,304/9 = \$12,923$ /month. 1.5 Summer months are budgeted in Year 4 at  $1.5 \times \$12,923 = \$19,385$ .

### B Other Personnel \$10,000

During Years 2 and 4 other personnel are employed to plan and assist in presenting each course.

B3) One graduate student will assist in instruction, receiving \$1,500 in each of Years 2 and 4, for a total of **\$3,000**.

B4) **Two** undergraduate students will serve as mentors, receiving \$500 per person in each of Years 2 and 4, for a total of **\$2,000**.

B6) We expect to have a second faculty member instructing. Salary is budgeted for \$2,500 in each of Years 2 and 4, for a total of **\$5,000**.

### C Fringe Benefits \$11,447

For the PI and faculty instructor, fringe benefits are calculated using rates from our federally negotiated rate agreement. The summer salary rate used for Year 1 is 14.5% for the period 7/1/20 – 6/30/21; Years 2 – 4 are 15.5% for the period 7/1/21 – 6/30/22 and periods after until amended.

### D Equipment \$15,000

**\$15,000** is budgeted in Year 1 for a server to be dedicated to this project. This would allow for the purchase of a unit with 24 cores and 192 GB of RAM. This capacity would allow up to 30 persons to access remote computing resources on the server at the same time when working with data up to 5 GB in size. The big benefit of placing resources on a dedicated server is that the only requirement is internet access and username/password (provided by IT); people could use the resources without having to go through multiple steps of installing and troubleshooting software on their own machines, or, in the case of Stata, of purchasing a license, and they could access multiple types of resources, easing the process of learning and switching from one computing

resources to another. In sum, this would provide a remote, shared, accessible set of computing resources to facilitate the instructional and professional development activities of the project.

#### E Travel \$58,425

Travel to project team meetings will be held in conjunction with related conferences. Five trips per year are budgeted for the PI and 5 trips per year for support professionals involved in the project. We have allocated per trip \$500 transportation, \$250 lodging, \$250 conference registration, and \$100 meals, for a total per trip/per person in the amount of \$1,100.

\$1,100/trip x 10 trips/year = **\$11,000 per year.**

Travel is also budgeted for the Years 2 and 4 courses, which will involve 4 instructors and mentors. Starting with current per diem levels in Albany, New York, the lodging per diem is \$113 base before taxes, \$129/night including occupancy taxes at the current rate of 14%. For Year 2, we include a 5% inflation rate each of 2 years, so  $\$129 \times 1.05 \times 1.05 = \$142$  per night.  $4 \text{ people} \times \$142/\text{night} \times 5 \text{ nights} = \$2,840$  lodging for Year 2 instructors and mentors.

Meals for instructors and mentors are budgeted starting with the current Albany, New York amount which is \$61. For Year 2 we include a 5% inflation rate each of 2 years, so  $\$61 \times 1.05 \times 1.05 = \$67$  per day.  $4 \text{ people} \times \$67 \text{ per day} \times 5 \text{ days} = \$1,340$  Meals.

Airfare for Year 2 is budgeted at \$500 per person, so  $\$500 \times 4 = \$2,000$ . Local transportation is budgeted at \$70 per person.  $\$70 \times 4 \text{ people} = \$280$  Year 2.

Year 4 course travel is calculated with each line reflecting a 5% annual inflation rate.

Lodging:  $\$2,840 \times 1.05 \times 1.05 = \$3,131$  Lodging Year 4

Meals:  $\$1,340 \times 1.05 \times 1.05 = \$1,477$  Meals Year 4

Airfare:  $\$2,000 \times 1.05 \times 1.05 = \$2,205$  Airfare Year 4

Local Transportation:  $\$280 \times 1.05 \times 1.05 = \$309$  Local Transportation Year 4

**Total Year 4: \$7,122**

In addition, there is a working dinner the night before the course begins. We used  $\$64 \times 80\% \times 1.05$  for dinner only amount of \$54 for Year 1.  $\$54 \times 1.05 = \$56.70 \times 6 = \$340$  in Year 2

$\$340 \times 1.18$  (to include tip) = **\$401 Year 2**

For Year 4 the working dinner would be  $\$401 \times 1.05 \times 1.05 = \$442$  Year 4.

#### F Participant Support \$49,225

Years 2 and 4 will each contain a one week course held at the University at Albany. Each course will have twenty participants.

F2) Travel \$23,969

For Year 2 we have budgeted \$500 per person for airfare, so  $\$500 \times 20 = \$10,000$ . For Year 4 we have inflated this by 5% for each year, yielding  $\$10,000 \times 1.05 \times 1.05 = \$11,025$  for participant airfare.

Local transportation and/or long term parking are budgeted at  $\$70 \times 20 = \$1,400$  in Year 2. Year 4, including 5% per year inflation, totals  $\$1,400 \times 1.05 \times 1.05 = \$1,544$ .

F3) Subsistence \$23,044

Participants will be lodged in dormitories on campus. The current weekly rate is \$175. For Year 2 we have used a 5% inflation factor per year.  $\$175 \times 1.05 \times 1.05 = \$193$ .  $\$193 \times 20$  participants = **\$3,860 lodging** budgeted in Year 2. Year 4 lodging is  $\$3,860 \times 1.05 \times 1.05 = \$4,256$ .

Because participants will be arriving the day before the courses begin we have budgeted for 5 days of meal per diems plus a closing day function, which is included in F4, below. The current Albany, New York meal per diem rate is \$64. Using the 5% inflation factor for two years the calculation becomes  $\$64 \times 1.05 \times 1.05 = \$71$  x 5 days x 20 participants = **\$7,100 Year 2**.

Using a 5% inflation factor per year  $\$7,100 \times 1.05 \times 1.05 = \$7,828$  Year 4.

F4) Other \$2,212

Each course will conclude with a closing day barbecue at which the participants will be able to ask final questions and give feedback in an informal setting. For Year 2 we have budgeted \$22 per person and assumed 20 participants, 4 instructors and mentors, and 2 high ranking members of the University community.  $\$22 \times 26 = \$572$  Year 2. Using a 5% inflation factor per year it is budgeted at **\$631 in Year 4**. There will also be program T Shirts included at \$16 each. 30 ordered so  $\$16 \times 30 = \$480$  Year 2. Using a 5% inflation factor per year,  $\$480 \times 1.05 \times 1.05 = \$529$  in Year 4.

G1) Materials and Supplies \$3,900

**\$3,300** is budgeted in Year 1 to upgrade our current STATA license to a 25-user license which would be installed on the new dedicated server and be available to the summer camp, as well as any other workshops or trainings hosted by the project.

\$300 is budgeted in each of Years 2 and 4 for printing of course materials and binders, for a total of **\$600**.

I) Total Indirect Costs \$77,716

Indirect Costs are charged at 53% MTDC, our federally approved rate for Training projects. Participant Support and Equipment are not included in the indirect cost base. Indirect costs are budgeted at **\$77,716**.

## Current and Pending Support

**(See PAPPG Section II.C.2.h for guidance on information to include on this form.)**

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.	
Investigator: Richard Ball	Other agencies (including NSF) to which this proposal has been/will be submitted.
<p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Alfred P. Sloan Foundation grant to Haverford College to support Project TIER (Award #G-2017-9725).</p> <p>Source of Support: Alfred P. Sloan Foundation</p> <p>Total Award Amount: \$ 302,246 Total Award Period Covered: 07/01/17 - 06/30/20</p> <p>Location of Project: Haverford College</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 1.80 Sumr: 1.50</p>	
<p>Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: THIS PROPOSAL: Collaborative Research: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional</p> <p>Source of Support: NSF</p> <p>Total Award Amount: \$ 2,000,523 Total Award Period Covered: 07/01/20 - 06/30/24</p> <p>Location of Project: Haverford College</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 3.60 Sumr: 2.00</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Summ:</p>	

\*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

## Current and Pending Support

**(See PAPPG Section II.C.2.h for guidance on information to include on this form.)**

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.	
Investigator: Nicole Janz	Other agencies (including NSF) to which this proposal has been/will be submitted.
<p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Newton Mobility Grant</p> <p>Source of Support: British Academy</p> <p>Total Award Amount: \$ 12,821 Total Award Period Covered: 01/01/16 - 06/20/19</p> <p>Location of Project: University of Nottingham, UK</p> <p>Person-Months Per Year Committed to the Project. Cal:1.20 Acad: 0.00 Sumr: 0.00</p>	
<p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Research Priority Area Rights and Justice</p> <p>Source of Support: University of Nottingham, UK</p> <p>Total Award Amount: \$ 16,537 Total Award Period Covered: 01/01/17 - 06/20/19</p> <p>Location of Project: University of Nottingham, UK</p> <p>Person-Months Per Year Committed to the Project. Cal:0.60 Acad: 0.00 Sumr: 0.00</p>	
<p>Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: THIS PROPOSAL: Collaborative Research: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional</p> <p>Source of Support: NSF</p> <p>Total Award Amount: \$ 2,000,523 Total Award Period Covered: 07/01/20 - 06/30/24</p> <p>Location of Project: Haverford College</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.00 Sumr: 2.00</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Summ:</p>	

\*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

## Current and Pending Support

**(See PAPPG Section II.C.2.h for guidance on information to include on this form.)**

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.	
Investigator: Norm Medeiros	Other agencies (including NSF) to which this proposal has been/will be submitted.
<p>Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Alfred P. Sloan Foundation grant to Haverford College to support Project TIER (Award #G-2017-9725).</p> <p>Source of Support: Alfred P. Sloan Foundation</p> <p>Total Award Amount: \$ 302,246 Total Award Period Covered: 07/01/17 - 06/30/20</p> <p>Location of Project: Haverford College</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.90 Sumr: 0.30</p>	
<p>Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: THIS PROPOSAL: Collaborative Research: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional</p> <p>Source of Support: NSF</p> <p>Total Award Amount: \$ 2,000,523 Total Award Period Covered: 07/01/20 - 06/30/24</p> <p>Location of Project: Haverford College</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.90 Sumr: 0.30</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Summ:</p>	

\*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

## Current and Pending Support

**(See PAPPG Section II.C.2.h for guidance on information to include on this form.)**

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.	
Investigator: Michael OHara	Other agencies (including NSF) to which this proposal has been/will be submitted.
<p>Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Collaborative Research: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional Norms</p> <p>Source of Support: NSF</p> <p>Total Award Amount: \$ 221,179 Total Award Period Covered: 07/01/20 - 06/30/24</p> <p>Location of Project: St. Lawrence University</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.00 Sumr: 2.00</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Summ:</p>	

\*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

## Current and Pending Support

**(See GPG Section II.D.8 for guidance on information to include on this form.)**

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: David Vera	Other agencies (including NSF) to which this proposal has been/will be submitted <b>None</b>		
Support:	<input type="checkbox"/> Current	<input checked="" type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future
*Transfer of Support			
Project/Proposal Title: Collaborative Research: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional Norms			
Source of Support: NSF			
Total Award Amount:	\$168,532		
Total Award Period Covered: July 1, 2020 - June 30, 2024			
Location of Project: California State University, Fresno			
Person-Months Per Year Committed to the Project.		Cal:	Acad:
			Sumr: 2.0
Support:	<input type="checkbox"/> Current	<input type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future
*Transfer of Support			
Project/Proposal Title:			
Source of Support:			
Total Award Amount:	Total Award Period Covered:		
Location of Project:			
Person-Months Per Year Committed to the Project.		Cal:	Acad:
			Sumr:
Support:	<input type="checkbox"/> Current	<input type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future
*Transfer of Support			
Project/Proposal Title: (#1239590)			
Source of Support:			
Total Award Amount:	Total Award Period Covered:		
Location of Project:			
Person-Months Per Year Committed to the Project.		Cal:	Acad:
			Sumr:
Support:	<input type="checkbox"/> Current	Pending	<input type="checkbox"/> Submission Planned in Near Future
*Transfer of Support			
Project/Proposal Title:			
Source of Support:			
Total Award Amount:	Total Award Period Covered:		
Location of Project: <b>Georgia Tech</b>			
Person-Months Per Year Committed to the Project.		Cal:	Acad:
			Sumr:

\*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

## Current and Pending Support

**(See PAPPG Section II.C.2.h for guidance on information to include on this form.)**

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.	
Investigator: Simon Halliday	Other agencies (including NSF) to which this proposal has been/will be submitted.
<p>Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Collaborative Research: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional Norms</p> <p>Source of Support: National Science Foundation</p> <p>Total Award Amount: \$ 177,259 Total Award Period Covered: 07/01/20 - 06/30/24</p> <p>Location of Project: Smith College</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.00 Sumr: 1.50</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Summ:</p>	

\*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

## Current and Pending Support

**(See PAPPG Section II.C.2.h for guidance on information to include on this form.)**

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.	
Investigator: Matthew Ingram	Other agencies (including NSF) to which this proposal has been/will be submitted.
<p>Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Collaborative Proposal: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional Norms</p> <p>Source of Support: National Science Foundation</p> <p>Total Award Amount: \$ 288,576 Total Award Period Covered: 07/01/20 - 06/30/24</p> <p>Location of Project: Albany, New York</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.00 Sumr: 1.25</p>	
<p>Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title: Spatial Dynamics of Homicide in the U.S., Mexico, and Central America</p> <p>Source of Support: National Science Foundation</p> <p>Total Award Amount: \$ 378,302 Total Award Period Covered: 07/01/19 - 06/30/23</p> <p>Location of Project: Albany, New York</p> <p>Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.00 Sumr: 1.25</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:</p>	
<p>Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support</p> <p>Project/Proposal Title:</p> <p>Source of Support:</p> <p>Total Award Amount: \$ Total Award Period Covered:</p> <p>Location of Project:</p> <p>Person-Months Per Year Committed to the Project. Cal: Acad: Summ:</p>	

\*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

## **FACILITIES, EQUIPMENT AND OTHER RESOURCES**

### **1) Facilities and Equipment**

The special facilities and equipment required to carry out the proposed activities that will take place at Haverford College include:

1. Meeting rooms, with video projection, in which workshops and conferences can be held. In particular:
  - a. For Faculty Development Workshops (twice per year): One room with capacity for 20 people, for one and one-half consecutive days.
  - b. For Fellows Conferences (once per year): One room with capacity for 12 people, for two consecutive days, once per year.
  - c. For TIER Fest (once per year): One auditorium with capacity for 70 people, and 4 meeting rooms or classrooms, for one and one-half consecutive days.
  - d. For Annual Meetings of the Executive Committee (once per year): One room with capacity for 12 people, for one and one-half consecutive days.

Suitable venues for all these events exist at Haverford College, and will be made available for the purposes described above.

2. Recording software that can be used to create training videos to be posted on the Project TIER website.

Access to and support for use of video software are routinely provided by Haverford College Instructional and Information Services, and will be available to Project TIER collaborators.

### **2) Co-PI Norm Medeiros**

As Associate Librarian at Haverford College, Medeiros is expected to be engaged in scholarly and professional activities beyond the scope of his direct work for the Haverford College Library (much as faculty are expected to be engaged in research and service to their professions). The kind and quantity of work Medeiros has done for Project TIER since 2013, and will continue through the period of the proposed grant, is part of what he does to satisfy that expectation. The work he will perform for the grant therefore does not require additional salary support or leave time.

## **Facilities and Additional Resources**

### **Overview of St. Lawrence University (SLU)**

SLU, chartered in 1856, is the oldest continuously coeducational institution of higher learning in New York State, and today is an independent, private, non-denominational, liberal arts university. SLU offers 69 majors, 40 minors, 27 off-campus study programs in 20 countries, and 5 off-campus programs in the U.S. to a population of 2,414 undergraduates (44% men and 56% women). Our students represent 43 states and 53 foreign countries: 33.8% New York State; 57.6% U.S., non-New York State; and 8.6% from outside the U.S. 21% of our students are Pell grant recipients, a rate higher than at most select, small private colleges in the U.S., and an additional 10% of our students fall in the next tier of high financial need, so almost one in three students face significant economic barriers. In New York State, and SLU enrolls the highest number of students from foster families of any private college.

National rankings include #58 among Best National Liberal Arts Colleges in the US News & World Report “Best Colleges” guidebook, and Best Alumni Network (#3), Best Science Lab Facilities (#17), and Impact Schools (#25) in the Princeton Review. International Education’s annual Open Doors report ranked SLU #15 for Study Abroad Programs, and Forbes recognized SLU as one of the top 20 institutions of higher education for excellence in educating women in the sciences. The Fiske Guide to Colleges highlights SLU’s classical liberal arts education, small classes and team teaching approach, innovative First-Year Program, and campus facilities.

### **Economics Department**

The Laboratory for Experimental Economics provides St. Lawrence University faculty and students with a facility for studying how people make choices. The laboratory supports classroom experiments, as well as faculty and student research on principles of economics, making key concepts like competitive markets and public goods clear and meaningful.

### **Other Resources**

**Peterson Quantitative Resource Center (PQRC)** – The PQRC is a focal point for quantitative resources for students and faculty in the St. Lawrence University community. It facilitates research that involves quantitative reasoning. Students use it to analyze data, and use quantitative software to calculate and interpret statistics.

**SLU Libraries and Information Technology Division** – Guided by the university mission and strategic map, the Libraries (main and science) and Information Technology division provides scholarly and technology services, resources, and infrastructure which are critical for student learning at a residential liberal arts University.

**SLU Institutional Review Board (IRB)** – The role of the SLU IRB is to ensure that the autonomy and privacy of participants in research conducted by members of the St. Lawrence community are protected.

## **FACILITIES, EQUIPMENT and OTHER RESOURCES**

**Not Applicable**

## Facilities, Equipment and Other Resources – Smith College and Dr. Halliday

Below we comment on the required resources, facilities and personnel for the diversity workshops.

### **Facilities and Classrooms**

Smith College has a variety of computer laboratory classrooms that can be used in the diversity training workshops. Smith College also has student housing, dining and other facilities that would be used during the workshops to provide accommodation and food to attendees of the workshops. The college also provides work space, internet connections (Wi-Fi), library resources, and other resources.

### **Personnel**

#### *Faculty*

With respect to personnel, Dr. Halliday will be involved in facilitating the instruction of the workshops. Smith College's Statistics and Data Science Program also has numerous faculty who are involved in teaching statistical methods in R, R Markdown and Python. The Five Colleges (UMass Amherst, Amherst College, Smith College, Mount Holyoke College, and Hampshire College) have a variety of faculty involved in the teaching of social sciences, statistics and data science who could be recruited as additional faculty for the workshop.

#### *PhD Candidate Instructors*

UMass, Amherst has PhD Programs in disciplines relevant to the topics of the workshop and Dr. Halliday has colleagues in the relevant departments who could recommend qualified PhD candidates who would be good instructors in the workshop. Moreover, Smith College hired a Statistics Fellow from the graduate programs at UMass who would likely already be an excellent candidate for the job. Furthermore, the faculty at Smith College also recruit research assistants from the PhD programs at UMass and these research assistants would have the required disciplinary and field-specific skills for the program.

#### *Teaching Assistants*

Smith College has several programs for student teaching assistants through the Spinelli Center for Quantitative Learning and the Science Center's Statistics Fellows program, and these students would be hired for the initial set of teaching assistants (TAs) for the program. In subsequent years, the TAs would be hired from alumni of the program or from the pool of teaching assistants at the college (depending on availability of alumni of the program).

Facilities, Equipment, and Other Resources  
The Research Foundation for The State University of New York  
University at Albany

The University provides work space, computers, and printers. Internet connection and library resources are available.

The Center for Policy Research (CPR), located in the Rockefeller College of Public Affairs and Policy, will provide grant administration and act as liaison between the Principal Investigator and the departments of the Research Foundation for State University of New York in all financial matters. This includes initiation and follow up of paperwork and transactions for payroll, travel, and procurement.

Computing support will be provided by the Academic & Research Computing Center (ARCC) at UAlbany. The ARCC mission is as follows: "We exist to serve as a nexus for academic and research information technology innovation, concentrating on research computing, analytics, visualization and advanced application with a focus on the overall pan-discipline integrated teaching and research environment."

The ARCC group develops core services in support of research, including high-performance computing for grant-seeking and funded researchers. ARCC provides consultation throughout the grant process, including pre-grant development, facilities set-up and configuration, establishing production environments and decommissioning.

The staff, including Dr. Nicholas Schiraldi, are available as part of the ARCC's services to the campus. Dr. Schiraldi has expertise in multiple programming languages, remote and high-performance computing, research transparency and reproducibility, and free and open-source computing resources. Further, he has already helped the PI (Dr. Ingram) set up shared, remote access to free, open-source computing resources for a series of workshops in Fall 2018 and a formal class in Spring 2019 and serve to pilot the computing resources that will be used as part of this project, including the summer camp. Along with other personnel at ARCC, Dr. Schiraldi will provide support for this project.

## **Data Management Plan**

Please note: Most of the text in this section was provided by Westat.

### **1. Products of the Research**

The proposed research will generate assessment data products expected to consist of 1) responses to surveys of faculty and students; 2) coded interview notes or transcriptions from interviews with faculty; 3) sample student research reports obtained from faculty participating in the program; and 4) evaluation reports. Additionally, curricular materials and student projects will be generated during the term of the research project.

### **2. Data Format and Content**

Assessment data will be stored in varying formats: 1) survey data will be stored in .CSV files or other standard file format 2) coded interview notes and transcriptions will be stored in qualitative software (eg., NVivo) data files NVivo files; 3) sample student research reports will be stored in standard text file format; and 4) the evaluation reports will be stored in .PDF format. Curricular materials will be stored in .DOCX and .PDF formats. Student projects will feature text, raw data files, and computational code. These objects will be stored in both open (e.g., .TXT, .PDF) formats as well as proprietary formats (e.g., .DTA, .XLS, .DOCX).

### **3. Policies for Access, Sharing, and Storage of Data**

Assessment data will be stored in Westat's secure computing environments with established IT security policies and best practices to ensure the integrity, availability and confidentiality of the information. Security policies and controls reflect federal regulations and are organized into several broad areas: facility and computer security, data security, network and data communications security, personnel security, disaster recovery, and user assistance and incident reporting. Each network storage directory is assigned an owner when it is created. Access to network-based data files is controlled through the use of directory and file access rights based upon user account ID and the associated user group definition. Access rights are granted to specifically authorized users by the directory owner or the system administrator. Access to secure computer systems requires two-factor authentication. All server and network data storage areas are protected by access privileges, which are assigned by the appropriate system administrator.

As a matter of policy, data files are stored on network servers, rather than on local PC hard disk drives. Daily network disk backups are made to protect against equipment and system failures. A full disk backup is performed once a week and the media are retained for 8 weeks. A daily incremental backup that copies any files changed that day is performed the remaining 6 days of the week and these tapes are retained for 4 weeks. An additional backup is created every fourth week and retained for 1 year. All back-up tapes are removed daily from Westat's premises and transported in secure containers to an off-site storage facility that specializes in transporting and storing electronic media.

Curricular materials will be stored on and made publicly-accessible via the Project TIER web site. Student projects, in their finished states, will be stored on and made publicly-accessible on the Project TIER Dataverse, hosted at Harvard University, and on the Project TIER web site.

#### **4. Protection of Privacy and Confidentiality**

The Westat evaluation team will adhere to federal rules regarding the protection of human subjects in research. The evaluation team will obtain approval to conduct the faculty and student surveys, interviews, and reviews of student research papers from Westat's Institutional Review Board (IRB). Westat has its own IRB, which is responsible for protecting the rights and welfare of human subjects who participate in projects. The IRB operates under procedures set forth in the regulations of the U.S. Department of Health and Human Services (HHS) and in the Federalwide Assurance (FWA) granted to Westat by the Office of Human Research Protections (OHRP). Westat's IRB will review information about the project, including the survey instruments, interview protocols, informed consent language, recruitment letters, and any other materials, to ensure that participants are provided sufficient opportunity and adequate information to actively consent to participating. As part of obtaining consent for each data collection component, each respondent will be apprised that participation is entirely voluntary, participation can end at any time during the survey or interview, and their information will be protected and their confidentiality maintained except as required by law. Respondents will also be informed that their responses will be used to summarize findings in an aggregate manner or will be used to provide examples of implementation in a manner that does not associate responses with specific individual. The IRB will also review procedures related to the maintenance of data confidentiality and security, including the transport/transmission of electronic data, storage and dissemination of data, and destruction of identifying information.

Following approval from Westat's IRB, the evaluation team will ensure all staff involved in data collection are adequately trained in data security procedures and will document the data security procedures to be used by all participating researchers for data collection and for any transfers of data. This will occur prior to any conduct of the data contacts and collection. Training will include how to store data without individual names and how to discuss survey and interview data only within a team context for analysis purposes.

#### **5. Plans for Archiving Data**

Assessment data will be retained for three years after the award's conclusion, unless another duration is agreed upon by Haverford College and NSF. All project documents are kept for the duration of the agreed upon retention period. Long-term, off-site storage of materials is handled by a reputable and bonded firm. When the retention period has expired, the owner of the documentation is contacted to determine if the contents should continue to be retained or if the contents should be destroyed. Industry-approved destructive methods are employed for destroying any data on server and workstation storage devices and portable media. Paper records that need to be destroyed are shredded.

Curricular materials will be served from the Project TIER web site, hosted by an external web provider, and archived on network storage supported by Haverford College. Student projects mounted on Dataverse will support long-term persistence of these digital objects via redundant cloud service provided by Amazon S3 and Glacier and sponsored by Harvard University. Thus multiple, geographically disperse copies of all curricular materials will be maintained at all times.

#### **6. Policies for Re-Use**

Use and extension of curricular materials, governed by a Creative Commons CC-BY-NC license, are strongly encouraged.

**Dr Nicole Janz**

School of Politics and International Relations  
Room B121 Law and Social Sciences  
Nottingham UK NG7 2RD  
T: +44 (0)115 84 86345  
E: [Nicole.Janz@nottingham.ac.uk](mailto:Nicole.Janz@nottingham.ac.uk)  
W: [www.nicolejanz.de](http://www.nicolejanz.de)

27 Nov 2018

## **Letter of Collaboration**

If the proposal submitted by Dr. Richard Ball entitled "Collaborative Research: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional Norms" is selected for funding by NSF, it is my intent to collaborate and/or commit resources as detailed in the Project Description or the Facilities, Equipment and Other Resources section of the proposal.

Sincerely,



Nicole Janz, Ph.D.



10 December 2018

## Letter of Collaboration

If the proposal submitted by Dr. Richard Ball entitled "Collaborative Research: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional Norms" is selected for funding by NSF, it is my intent to collaborate and/or commit resources as detailed in the Project Description or the Facilities, Equipment and Other Resources section of the proposal.

Sincerely,

A handwritten signature in blue ink, appearing to read "Norm Medeiros".

Norm Medeiros  
Associate Librarian of the College



An Employee-Owned  
Research Corporation

1600 Research Boulevard  
Rockville, MD 20850-3129  
tel: 301-251-1500  
fax: 301-294-2040  
[www.westat.com](http://www.westat.com)

December 7, 2018

To Whom It May Concern:

If the proposal submitted by Dr. Richard Ball entitled "Collaborative Research: Undergraduate Training in Reproducible Research Methods: Curriculum Development and Impact Assessment to Transform Professional Norms" is selected for funding by the National Science Foundation's Improving Undergraduate STEM Education: Education and Human Resources (IUSE: EHR) Program, it is my intent for Westat to collaborate with Haverford College and/or commit resources as detailed in the Project Description or Facilities, Equipment, and Other Resources section of the proposal.

Thank you,

A handwritten signature in black ink that reads "Joy A. Frechtling".

Joy A. Frechtling, Ph.D.  
Vice President

<b>Westat, Inc. (Subcontractor to Haverford College)</b> <b>Price Detail - Total By Year - All Tasks</b> <b>National Science Foundation</b> <b>Improving Undergraduates STEM Education: Education</b> <b>and Human Resources</b> <b>RFP Number: 17-590</b>		Year 1		Year 2		Year 3		Year 4		Total	
		7/1/2020 6/30/2021		7/1/2021 6/30/2022		7/1/2022 6/30/2023		7/1/2023 6/30/2024		7/1/2020 6/30/2024	
		Personnel	Labor Category	Hours	Amount (\$)						
<b><u>Onsite Salaried</u></b>											
John Wells	Program Manager	154	8,719	140	8,139	134	8,001	116	7,113	544	31,972
Ning Rui	Program Manager	56	3,170	90	5,232	92	5,494	104	6,377	342	20,273
Senior Researcher	Senior Researcher	20	941	80	3,865	84	4,168	84	4,280	268	13,254
Word Processor	Word Processor	16	634	8	325	8	334	8	343	40	1,636
Programmer	Programmer	60	2,377	28	1,139	28	1,170	0	0	116	4,686
Senior Researcher	Senior Researcher	112	4,436	88	3,580	0	0	0	0	200	8,016
Editor	Editor	20	662	12	408	12	419	12	430	56	1,919
Researcher	Researcher	40	1,325	40	1,360	40	1,397	0	0	120	4,082
Research Assistant	Research Assistant	64	1,789	84	2,411	184	5,420	44	1,331	376	10,951
<b>Total Onsite Salaried</b>		<b>542</b>	<b>24,053</b>	<b>570</b>	<b>26,459</b>	<b>582</b>	<b>26,403</b>	<b>368</b>	<b>19,874</b>	<b>2,062</b>	<b>96,789</b>
<b>Total Labor</b>		<b>542</b>	<b>24,053</b>	<b>570</b>	<b>26,459</b>	<b>582</b>	<b>26,403</b>	<b>368</b>	<b>19,874</b>	<b>2,062</b>	<b>96,789</b>
<b><u>Other Direct Costs</u></b>											
Desktop Computing		596		628		641		405		2,270	
Copying		361		396		397		298		1,452	
Supplies		242		265		265		199		971	
<b>Total Other Direct Costs</b>		<b>1,199</b>		<b>1,289</b>		<b>1,303</b>		<b>902</b>		<b>4,693</b>	
<b>Total Direct Costs</b>		<b>25,252</b>		<b>27,748</b>		<b>27,706</b>		<b>20,776</b>		<b>101,482</b>	
<b>Total Indirect Costs</b>		<b>36,901</b>		<b>40,587</b>		<b>40,501</b>		<b>30,475</b>		<b>148,464</b>	
<b>Total Price</b>		<b>62,153</b>		<b>68,335</b>		<b>68,207</b>		<b>51,251</b>		<b>249,946</b>	

Westat, Inc. (Subcontractor to Haverford College) Price Detail - Year 1 National Science Foundation Improving Undergraduates STEM Education: Education and Human Resources RFP Number: 17-590		Task 1		Task 2		Task 3		Task 4		Task 5		Task 6		Task 7		Total		
		Communication		Instrument Development		Data Collection: Telephone Interview		Data Collection: Faculty Survey		Review of Student Research Papers		Analysis of Student Summer Institute Survey		Report				
<u>Personnel</u>	<u>Labor Category</u>	Hourly Rate (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)
<u>Onsite Salaried</u>																		
John Wells	Program Manager	56.61	40	2,264	16	906	16	906	24	1,359	0	0	8	453	50	2,831	154	8,719
Ning Rui	Program Manager	56.61	20	1,132	20	1,132	0	0	0	0	0	0	0	0	16	906	56	3,170
Senior Researcher	Senior Researcher	47.04	0	0	0	0	0	0	0	0	0	0	0	0	20	941	20	941
Word Processor	Word Processor	39.61	0	0	8	317	0	0	0	0	0	0	0	0	8	317	16	634
Programmer	Programmer	39.61	0	0	0	0	0	0	60	2,377	0	0	0	0	0	0	60	2,377
Senior Researcher	Senior Researcher	39.61	0	0	40	1,584	72	2,852	0	0	0	0	0	0	0	0	112	4,436
Editor	Editor	33.12	0	0	8	265	0	0	0	0	0	0	0	0	12	397	20	662
Researcher	Researcher	33.12	0	0	0	0	0	0	0	0	0	0	40	1,325	0	0	40	1,325
Research Assistant	Research Assistant	27.94	0	0	0	0	0	40	1,118	0	0	0	0	0	24	671	64	1,789
Total Onsite Salaried			60	3,396	92	4,204	88	3,758	124	4,854	0	0	48	1,778	130	6,063	542	24,053
Total Labor			60	3,396	92	4,204	88	3,758	124	4,854	0	0	48	1,778	130	6,063	542	24,053
<u>Other Direct Costs</u>																		
Desktop Computing			66		101		97		136		0		53		143		596	
Copying			51		63		56		73		0		27		91		361	
Supplies			34		42		38		49		0		18		61		242	
Total Other Direct Costs			151		206		191		258		0		98		295		1,199	
Total Indirect Costs			5,207		6,449		5,766		7,449		0		2,729		9,301		36,901	
Total Price			8,754		10,859		9,715		12,561		0		4,605		15,659		62,153	

Westat, Inc. (Subcontractor to Haverford College) Price Detail - Year 2 National Science Foundation Improving Undergraduates STEM Education: Education and Human Resources RFP Number: 17-590		Task 1		Task 2		Task 3		Task 4		Task 5		Task 6		Task 7		Total		
		Communication		Instrument Development		Data Collection: Telephone Interview		Data Collection: Faculty Survey		Review of Student Research Papers		Analysis of Student Summer Institute Survey		Report				
Personnel	Labor Category	Hourly Rate (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)		
<u>Onsite Salaried</u>																		
John Wells	Program Manager	58.14	20	1,163	8	465	16	930	24	1,395	16	930	8	465	48	2,791	140	8,139
Ning Rui	Program Manager	58.14	8	465	6	349	0	0	0	0	60	3,488	0	0	16	930	90	5,232
Senior Researcher	Senior Researcher	48.31	0	0	0	0	0	0	0	0	60	2,899	0	0	20	966	80	3,865
Word Processor	Word Processor	40.68	0	0	0	0	0	0	0	0	0	0	0	0	8	325	8	325
Programmer	Programmer	40.68	0	0	0	0	0	28	1,139	0	0	0	0	0	0	0	28	1,139
Senior Researcher	Senior Researcher	40.68	0	0	16	651	72	2,929	0	0	0	0	0	0	0	0	88	3,580
Editor	Editor	34.01	0	0	0	0	0	0	0	0	0	0	0	0	12	408	12	408
Researcher	Researcher	34.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	1,360
Research Assistant	Research Assistant	28.69	0	0	0	0	0	40	1,148	20	574	0	0	0	24	689	84	2,411
Total Onsite Salaried			28	1,628	30	1,465	88	3,859	92	3,682	156	7,891	48	1,825	128	6,109	570	26,459
<b>Total Labor</b>			28	1,628	30	1,465	88	3,859	92	3,682	156	7,891	48	1,825	128	6,109	570	26,459
<u>Other Direct Costs</u>																		
Desktop Computing			31		33		97		101		172		53		141		628	
Copying			24		22		58		55		118		27		92		396	
Supplies			16		15		39		37		79		18		61		265	
Total Other Direct Costs			71		70		194		193		369		98		294		1,289	
<b>Total Indirect Costs</b>			2,496		2,247		5,921		5,650		12,102		2,801		9,370		40,587	
<b>Total Price</b>			4,195		3,782		9,974		9,525		20,362		4,724		15,773		68,335	

Westat, Inc. (Subcontractor to Haverford College) Price Detail - Year 3 National Science Foundation Improving Undergraduates STEM Education: Education and Human Resources RFP Number: 17-590		Task 1		Task 2		Task 3		Task 4		Task 5		Task 6		Task 7		Total		
		Communication		Instrument Development		Data Collection: Telephone Interview		Data Collection: Faculty Survey		Review of Student Research Papers		Analysis of Student Summer Institute Survey		Report				
Personnel	Labor Category	Hourly Rate (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)		
Onsite Salaried																		
John Wells	Program Manager	59.71	20	1,194	0	0	16	955	24	1,433	16	955	8	478	50	2,986	134	8,001
Ning Rui	Program Manager	59.71	8	478	0	0	0	0	0	0	60	3,583	0	0	24	1,433	92	5,494
Senior Researcher	Senior Researcher	49.61	0	0	0	0	0	0	0	0	60	2,977	0	0	24	1,191	84	4,168
Word Processor	Word Processor	41.78	0	0	0	0	0	0	0	0	0	0	0	0	8	334	8	334
Programmer	Programmer	41.78	0	0	0	0	0	0	28	1,170	0	0	0	0	0	0	28	1,170
Senior Researcher	Senior Researcher	41.78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Editor	Editor	34.93	0	0	0	0	0	0	0	0	0	0	0	0	12	419	12	419
Researcher	Researcher	34.93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
Research Assistant	Research Assistant	29.46	0	0	0	0	100	2,946	40	1,178	20	589	0	0	24	707	184	5,420
Total Onsite Salaried			28	1,672	0	0	116	3,901	92	3,781	156	8,104	48	1,875	142	7,070	582	26,403
Total Labor			28	1,672	0	0	116	3,901	92	3,781	156	8,104	48	1,875	142	7,070	582	26,403
Other Direct Costs																		
Desktop Computing			31	0			128		101		172		53		156		641	
Copying			25	0			59		57		122		28		106		397	
Supplies			17	0			39		38		81		19		71		265	
Total Other Direct Costs			73	0			226		196		375		100		333		1,303	
Total Indirect Costs			2,563	0			5,989		5,801		12,428		2,877		10,843		40,501	
Total Price			4,308	0			10,116		9,778		20,907		4,852		18,246		68,207	

Westat, Inc. (Subcontractor to Haverford College) Price Detail - Year 4 National Science Foundation Improving Undergraduates STEM Education: Education and Human Resources RFP Number: 17-590		Task 1		Task 2		Task 3		Task 4		Task 5		Task 6		Task 7		Total		
		Communication		Instrument Development		Data Collection: Telephone Interview		Data Collection: Faculty Survey		Review of Student Research Papers		Analysis of Student Summer Institute Survey		Report				
<u>Personnel</u>	<u>Labor Category</u>	Hourly Rate (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)	Hours	Amount (\$)
<u>Onsite Salaried</u>																		
John Wells	Program Manager	61.32	40	2,453	0	0	0	0	16	981	0	0	60	3,679	116	7,113		
Ning Rui	Program Manager	61.32	20	1,226	0	0	0	0	60	3,679	0	0	24	1,472	104	6,377		
Senior Researcher	Senior Researcher	50.95	0	0	0	0	0	0	60	3,057	0	0	24	1,223	84	4,280		
Word Processor	Word Processor	42.91	0	0	0	0	0	0	0	0	0	0	8	343	8	343		
Programmer	Programmer	42.91	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Senior Researcher	Senior Researcher	42.91	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Editor	Editor	35.87	0	0	0	0	0	0	0	0	0	0	12	430	12	430		
Researcher	Researcher	35.87	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Research Assistant	Research Assistant	30.26	0	0	0	0	0	0	20	605	0	0	24	726	44	1,331		
Total Onsite Salaried			60	3,679	0	0	0	0	156	8,322	0	0	152	7,873	368	19,874		
<u>Total Labor</u>			60	3,679	0	0	0	0	156	8,322	0	0	152	7,873	368	19,874		
<u>Other Direct Costs</u>																		
Desktop Computing			66	0		0		0		172		0		167		405		
Copying			55	0		0		0		125		0		118		298		
Supplies			37	0		0		0		83		0		79		199		
Total Other Direct Costs			158	0		0		0		380		0		364		902		
Total Indirect Costs			5,640	0		0		0		12,761		0		12,074		30,475		
Total Price			9,477	0		0		0		21,463		0		20,311		51,251		