

Potential Forms of Curriculum Development and Outreach for 2020-21 TIER Fellows

This document describes a variety of activities that we believe could be undertaken productively by one or more Fellows in the 2020-21 cohort. They are grouped under the headings “Curriculum Development” and “Outreach.” Some of these activities would build on ongoing work, and others would be new areas of work for Project TIER.

The activities described in this document are just examples of the kinds of things Fellows could do; applicants are welcome to propose activities that are not included in this document. Indeed, the strongest proposals are often ones that draw on the candidate's particular interests and expertise and bring some entirely new dimension to Project TIER.

CURRICULUM DEVELOPMENT

Protocols related to different dimensions of research integrity and transparency. The TIER Documentation Protocol is focused on a particular aspect of transparency, namely computational reproducibility. A goal for the next several years is to broaden the scope of Project TIER to include other dimensions of transparency, and we would welcome leadership from one or more Fellows in the development of protocols or curricular resources for teaching good practices in areas such as:

- project registration and pre-analysis plans
- transparency in the generation of data (e.g., in experiments, surveys, or web scraping)
- mapping the forking paths of exploratory research (e.g., with “lab notebooks”)

- protecting the privacy and welfare of human survey respondents and research subjects

Current Fellows and other associates of Project TIER are already at work in some of these areas; we would be happy to put new Fellows in touch with them to explore opportunities for collaboration, or to hear proposals for independent work. We would also welcome ideas about curriculum development related to aspects of research integrity not listed above. For work in any of these areas, the goal would be to create resources that could be posted on the TIER website and be included in TIER workshops for faculty and/or students.

Introducing new technology that supports the goals of Project TIER. To date, the main tool emphasized by Project TIER has been the Open Science Framework (OSF) platform. It is a valuable tool for students learning to conduct and document research transparently, and it tremendously enhances an instructor's ability to supervise student research effectively and efficiently. Yet OSF is just one of a growing number of technologies for promoting research transparency, and a goal of Project TIER is to embrace a wider range of the platforms and software that are available. The many tools that might also prove useful include:

- GitHub
- R Markdown (and other kinds of dynamic documents software)
- Jupyter notebooks

We would welcome contributions from Fellows that take advantage of these or any other technologies in ways that would be useful in teaching students to conduct research transparently. Again, we could put applicants in touch with people already working in these areas, but we are also happy to receive proposals for independent work. The ultimate goal would be to develop resources to incorporate into the TIER website and to include in faculty and student workshops.

“Soup-to-nuts” exercises in reproducible data management and analysis.

We are developing a number of structured exercises that can be carried out in just one or two weeks, but that take students through all the steps of data acquisition, processing, and analysis they would undertake in a semester-long project culminating in a complete research paper. The purpose of these exercises is to serve as a warm-up to prepare students about to embark on larger independent projects, and to make it possible to teach transparent and reproducible research methods in settings where it is not feasible to assign semester-long research papers. We have written two prototypes of such exercises, which illustrate the nature of the exercises we have in mind. These prototype exercises are available on OSF, at <https://osf.io/fg7bm/>.

Our goal is to create a suite consisting of many dozens of such exercises, tagged by various properties (e.g., types of data sources, programming or data management challenges, analytical methods, and discipline or topic) so that instructors can find the ones that best suit their purposes. Creating exercises that could be included in this suite would be a valuable way for a Fellow to contribute to Project TIER. More ambitiously, a Fellow could propose to take a leadership role in soliciting and editing exercises to build this resource.

Demos written using software other than Stata. A demo project that illustrates how the TIER Documentation Protocol is implemented in practice is available on the [Project TIER website](#) and on [OSF](#). The documentation for this demo project was created using Stata. But because the Protocol was intentionally written in such a way that it can be adopted by users of any programmable software, we would like to make available parallel demos created with other packages, such as R, SPSS, SAS and Matlab. It would be helpful to us if one or more Fellows were to construct versions of the demo project using these alternative packages. We expect this would be a manageable and straightforward task for anyone proficient in any of these programs.

Evaluation. As described in the announcement of this year’s Fellowships, we will ask all Fellows to evaluate the effectiveness of their own transparency-related

teaching or research advising in some systematic way. We would also welcome contributions of Fellows in the development of more general or innovative methods or instruments for evaluation that could be adopted by other faculty.

OUTREACH

Organizing and/or teaching at Project TIER Faculty Development

Workshops. To date, most of the Faculty Development Workshops offered by Project TIER have been conducted by the two TIER directors and held at Haverford College. For the next several years, an important goal is to develop a cadre of colleagues who can organize and conduct workshops independently and offer them at institutions other than Haverford.

To date, external workshops have been held at Occidental College (in 2017), UCLA (2018), and St. Anne's College, Oxford (2019). Our goal is to continue offering Faculty Development Workshops both at Haverford and at other institutions, and to increase the involvement of qualified instructors in the organization and presentation of the workshops. We expect that current and past TIER Fellows will be an important pool from which to recruit workshop leaders and instructors, and expressions of interest for taking on such roles would be welcome. If applicants have in mind particular colleges or universities (their own or others) that they believe would be good sites for workshops, that information would also be very useful.

Organizing sessions or presenting papers at conferences. Past and current Fellows have presented papers about Project TIER or research transparency more generally at a variety of disciplinary conferences and professional meetings. In a number of cases, several Fellows have collaborated to organize multi-paper sessions. These events have been a valuable way to increase the visibility of Project TIER and promote the integration of transparency in the research training of social science students. We hope that Fellows in the next cohort will consider undertaking similar activities.

Developing regional networks. Project TIER has begun to establish a network of educators and researchers concerned about transparency and integrity, and many of these individuals come from institutions that are in the same geographical area or that are allied in formal or informal ways. We would like to explore ways of using these centers of activity to disseminate TIER curriculum and to stimulate interest among faculty, departments, and schools. Exactly what kind of initiatives would be effective will of course be context-specific, but we would welcome proposals to use and develop these regional affiliations in ways that promote the goals of Project TIER.