Plan for Instruction in Methods for Enhanced Reproducibility

Acknowledging that rigor and reproducibility are intertwined with all components of scrupulous scientific research from understanding the strengths and gaps in pre-existing research, through study design, inclusion/representation of appropriate variables, and authentication of key resources, this program teaches these fundamentals throughout. However some specific examples of venues and opportunities for this instruction are outlined below:

Understanding the **rigor of the prior research** is foundational to a precise research program. Program trainees learn the fundamentals of assessing prior research through their participation in the program's core curriculum and short courses and workshops. In the core curriculum, the program will adapt the (Full course title redacted) Grantsmanship (3 credits) to include specific training in evaluating scientific literature and conducting literature reviews. These skills will also be refined and applied practically during the professional development short course on manuscript writing as well as in trainees' theses/dissertations. For trainees completing the post-graduate fellowship program, trainees will complete an independent grant proposal as part of the fellowship under the guidance of their mentor panel, which will also allow trainees to practice evaluating the rigor of prior research as it relates to their proposed research.

Scientific rigor, the strict application of the scientific method to ensure robust and unbiased experimental design, methodology, analysis, interpretation and reporting of results is addressed in a number of settings. Development of implementation science design and methodology are addressed in the core curriculum course that we will adapt from Implementation Science (Full course title redacted) (3 credits). Scientific rigor will also be taught and assessed with trainees' mentor panels in the development and design of their thesis/ dissertation research, and for post-graduate fellows in their grant application proposal. Program mentors will guide trainees through practical experience with implementation science study design as trainees develop these various research proposals and projects. In addition, mentors will guide trainees through practical experience with analysis, interpretation and reporting of results as trainees develop their manuscripts and abstracts.

In addition to these core opportunities, specific courses within each degree will address scientific rigor.

Courses Within Each Degree Which Supplement Development of Knowledge and Skills in Scientific Rigor and Reproducibility (Full course titles redacted)

MSc FE	MPH	MSc IDGH	DrPH
Principles of XXX	Principles of XXX	Principles of XXX	:Systematic Review and Metanalysis
Biostatistics	XXX Research Methods	Research Methods	Quantitative Research Methods
Research methods	Statistical Methods in XXX	Appl. Biostatistics	Qualitative Research Methods
			Advanced Practice-Based Research Methods

The process for appropriately addressing **biological variables** such as sex and age will be addressed through all of the courses and activities outlined above.