REQUEST FOR APPLICATIONS: Pilot Project Proposal ReBUILDetroit

Notice Number: ReBUILDetroit Year 3

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Time-lines and Due Dates:

Letter of Intent Due:	Dec. 15, 2016
Drop-in Workshop on Budget Creation and PHS 398 and PHS 424 Forms Completion:	January 4, 2017 UDM E131 10am to noon Facilitators: Cate Caldwell and Dominique Gambino
Writing Effective Proposals 101:	Jan 6, 2017 UDM E131 Research grants: 9 – 10:30 am Pedagogy grants: 60 min. 11 am – noon Facilitators: Andrew Feig and Tim Stemmler
Biosketch Workshop	Tues. Jan. 10, 4 pm WSU – 5057 Woodward, 6th Floor Conf. Room A Facilitator: Ambika Mathur
Full Proposals Due:	January 30, 2017
Proposals Sent for External Review:	Feb. 1, 2017
External Reviews Due:	March 1, 2017
Internal Panel Ranking Complete/ P.I. Review and Funding Decisions:	March 6, 2017
Submission of Proposals to NIH:	March 6, 2017
NIH Approval of Projects:	April 3, 2017
Funding Period Begins:	June 1, 2017
Biannual Reports	Project reports will be due Nov. 1 and May 1 for the duration of the project with the final report due 30 days after the end date of the project

Requirements and Instructions

Letters of intent (LOI) should be submitted via Webform at:

ReBUILDetroit Pilot Project LOI

https://waynestate.az1.qualtrics.com/SE/?SID=SV_8e5gtHziGFZt5d3

Complete applications will be submitted as a PDF through an electronic submission system:

ReBUILDetroit Pilot Grant Submission Site

https://waynestate.az1.qualtrics.com/jfe/form/SV_3dQNSE3DSFI5Gwl

Paper applications will not be accepted.

All proposals should follow the format and page limits for an NIH R03 grant application. General information about the NIH R03 funding mechanism can be found at:

http://grants.nih.gov/grants/funding/r03.htm

Please note that NIH guidelines have changed as of January 2016. NIH now requires proposals to discuss "rigor and reproducibility" if applicable to the proposed work. This RFA follows the format of an NIH R03 grant; therefore, NIH's guidelines for including text on rigor and reproducibility are relevant. Please review them here:

http://grants.nih.gov/reproducibility/index.htm

Page limitations for the R03 funding mechanism are available at:

http://grants.nih.gov/grants/forms_page_limits.htm

IRB approval is required before funds can be released, but is not necessary at the time of proposal submission (see IRB Process section).

PART I: Overview of ReBUILDetroit Pilot Project Program

Section I. Overview

Issued by ReBUILDetroit Project, funded by the National Institutes of Health.

Section II. Purpose of ReBUILDetroit:

The long-term objective of the ReBUILDetroit project (Research Enrichment Building Undergraduate Infrastructure Leading to Diversity) is to align institutions and faculty from University of Detroit, Mercy, Marygrove College and Wayne State University to support the development of innovative undergraduate research training programs that eventually will increase the number of undergraduate and underrepresented students pursuing biomedical, behavioral, social, and clinical research careers. The strategies for institutional development used in the BUILD project are based on the persistence model for STEM education, which

posits that motivation and confidence are mutually reinforcing as students learn science through active learning in introductory courses, early engagement in authentic research experiences, and participation in learning communities. Specifically, the ReBUILDetroit Project will result in creation of a novel curricular pathway for students with courses that embed research into the curriculum, emphasis on early entry into mentored research experiences, alignment of culturally relevant student programs and services to support them, and development of new research-oriented learning communities in which they will participate. ReBUILDetroit will also expand cooperation between the partner institutions to provide greater curricular alignments, articulation agreements, inter-institutional communities for research, mentoring and engaging with faculty.

Section III. Purpose of Pilot and Collaborative Projects:

The goals of creating the Pilot Project mechanism through the ReBUILDetroit grant are to stimulate development for participating faculty and students of future opportunities for funding through federal agencies, to provide opportunities for faculty and students to gain experience in writing an NIH application, to go through a rigorous proposal review process, to gain experience designing a fundable research question, and to allow faculty to gather preliminary data for future research funding. Any biomedical research that could potentially be funded by NIH is relevant for this mechanism—basic science, translational medicine, clinical medicine, social science research, population health, and other related fields are of interest.

Pilot projects are an ideal environment through which to engage underrepresented students in research careers by embedding them in research communities in order to foster and extend their understanding of and interest in research. Becoming part of a research project in which they ideally will answer their own research questions will also provide a clearer pathway to graduate-level research programs.

Course Development Awards will focus on helping faculty take the course-based research experience model of the Research Coordination Network (RCN) laboratories and extend it to other elements of the curriculum. The project provides release time to ensure that the faculty member has the ability to think through the research-based curriculum effectively, develop interesting projects around which the course will focus, and to test any aspects that need to be piloted in advance of the course. Research-based courses like these work best if the course project provides an extension of an existing line of research for one or more of the faculty involved.

PART 2. Full Text of Announcement

Section I. Funding Opportunity Description

Research Pilot and Collaborative Projects

Research pilot and collaborative project proposal mechanism for the ReBUILDetroit pilot project grant is similar to an NIH R03, supporting discrete, well-defined projects that can be completed in a 12-24 month time period. The maximum amount awarded for a pilot or collaborative proposal is $25,000 USD in direct costs, though any direct cost amount between $5,000-$25,000 USD can be requested. For collaborative proposals across institutions, indirect costs included on a collaborator's sub-award budget ("consortium/contractual F&A") are excluded from the overall direct cost limit. Please see eligibility section for details on collaborations and eligibility of PIs and Co-PIs. It is anticipated that 3-5 research pilot or collaborative proposals will

be funded, depending on the quality of the applications, amount requested and the available budget.

Examples of the types of projects the Pilot and Collaborative mechanism will support are:

- Small, self-contained research projects
- Feasibility studies
- Secondary analyses of existing data
- Projects that will develop a research methodology
- Development of a new research technology

Because the research plan is restricted to 6 pages, not including the one-page mentoring plan, an R03-type grant application will not have the same level of detail or extensive discussion as an R01 application. Accordingly, reviewers will evaluate the conceptual framework and general approach to the problem, placing less emphasis on methodological details and certain indicators traditionally used in evaluating the scientific merit of R01 applications including supportive preliminary data. Appropriate justification for the proposed work can be provided through literature citations, data from other sources, or from investigator-generated data. Preliminary data are not required but if available can be included.

One of the major goals of pilot projects is to help train and develop ReBUILD faculty and scholars so that they are well prepared to succeed in biomedical research careers. Funded pilot projects should provide BUILD Scholars and faculty direct experiential learning opportunities for research development. Applications should specifically address how BUILD Scholars will participate in the project.

Applicants are encouraged during the development phase of their project to contact the individuals listed in Section VIII. Scientific/Research Institutional Contacts to see if their research question is appropriate. In addition, applicants will have the opportunity to ask questions during the technical assistance workshops in early January. Participation in these workshops is strongly encouraged.

Course Development Projects

The maximum amount awarded is $25,000 USD in direct costs, though any direct cost amount between $5,000-$25,000 USD can be requested. Applicable indirect costs SHOULD NOT be included in the proposal budget. It is anticipated that 3-5 research pilot or collaborative proposals will be funded, depending on the quality of the applications, amount requested and the available budget. For collaborative proposals across institutions, indirect costs included on a collaborator's sub-award budget ("consortium/contractual F&A") are excluded from the overall direct cost limit. Please see eligibility section for details on collaborations and eligibility of PIs and Co-Investigators. It is expected that the PI of the project be an instructor for the proposed course.

Course Development Proposals will follow an NSF IUSE style project although with a shorter project description limited to 4 pages in length. The remainder of the proposal application will use the NIH PHS398/424 forms, however since the grants are funded by NIH through the ReBUILDetroit grant.

Examples of the types of projects the Course Development mechanism will support are:

- Development and implementation of a research-based laboratory course
- Development of content for a research coordination network for your discipline

• Development of a research-based studio lecture/laboratory course

Courses may be new offerings or a reinvention of an existing course using evidence-based instructional practices.

Letter of Intent

A LOI is required in order to submit the full proposal and should be submitted via Webform (REBUILDetroit Pilot Project LOI) . LOIs will be used to inform the selection of reviewers for the proposed project. Everyone who submits an LOI is welcome to submit a full proposal. The LOI MUST contain the following information:

- Title of project
- Project Type (Pilot/Collaborative/Course Development)
- Names of potential co-investigators (not binding)
- Names of collaborating institutions
- For Pilot and Collaborative projects - Names of 2 study sections at NIH to which this project or one very similar in the type of research question asked, could be submitted. A list of study sections and rosters of their members can be found at: http://public.csr.nih.gov/StudySections/Standing/Pages/default.aspx
- 150-word lay language summary of the research question and activities
- Contact information (names, institutions and email addresses) of up to three potential reviewers of the proposed work, none of whom are at a ReBUILDetroit institution.

Once the topic has been submitted it cannot be changed entirely, but can be altered slightly.

LOI Submission link: https://waynestate.az1.qualtrics.com/SE/?SID=SV_8e5gtHziGFZt5d3

Section II. Award Information

Funding Instrument

Funds will be dispersed through the NIH-funded ReBUILDetroit Grant. Therefore, recipients must be eligible to receive federal funding (http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-13-016.html#_3._Additional_Information)

Application Types Allowed

Pilot Award

For an investigator with limited funding but record of research publications, this mechanism will provide seed money to obtain data necessary to apply for federal research grants. It is expected that results from this project will lead to submission of an NIH or NSF research proposal (such as R15, R21, or R01) within two-years of receiving the award to provide sustainability of the project. Allowable expenses include faculty summer salary (1 month per year), cost of course-load reduction (up to 2 courses over the period of the award), instrumentation usage such as NMR, MS, etc. (at WSU or elsewhere), and supply costs. Grants will be in the structure of an R03 project mechanism with a research strategy section limited to 6 pages. Research projects are expected to be high impact and address a research question of broad interest to the

field. Proposals should describe how BUILD Scholars will be involved in the project.

Collaborative Award

This grant mechanism will be for projects that are joint between faculty members at 2 or more consortium institutions, ***with at least one collaborator from a PUI institution.*** Allowable expenses include faculty summer salary (1 month per year), cost of course-load reduction (up to 2 courses over the period of the award; for PUI faculty only), instrumentation usage such as NMR, MS, etc. (at WSU or elsewhere) and supply costs. Summer salary can be allocated to both faculty, although research faculty can choose to allocate the money to a graduate student or post-doc if (s)he wishes. Grants will be in the structure of an R03 project mechanism with a research strategy section limited to 6 pages. Research projects are expected to be high impact and address a research question of broad interest to the field. It is expected that results from this project will lead to submission of an NIH or NSF research grant proposal (such as R15, R21 or R01) within two-year of receiving the award to provide sustainability of the project. Proposals should describe how BUILD Scholars will be involved in the project.

Course Development Award

Proposals to incorporate research into undergraduate courses beyond the current RCN laboratories are encouraged. Faculty are encouraged to collaborate with faculty from other departments and/or institutions as part of these projects . Projects can involve a singe course or a sequence of related courses within a program or across an interdisciplinary space not adequately served within the current curriculum. Proposed projects should involve **substantial changes** within the curriculum and not simply be the inclusion of a single module or unit within an existing course. This funding mechanism can be for faculty to develop or teach additional course-based undergraduate research experiences. These proposals may request **EITHER** one month of summer salary or a work-load reduction of one course over the duration of the funding period to provide the time for course development. Supplies, equipment and software required for the project are also allowable expenses provided suitable justification is provided. Summer salary may be allocated to each faculty member contributing to the course development. These projects must justify how they will help prepare BUILD Scholars for careers in biomedical research broadly defined. They must be evidence-based, using student-centered pedagogy and supported by education research. They should describe the relevant change theory in which they are grounded such that they will positively impact the relevant department, unit or program. Specific metrics and goals should be identified for the success of the project. It is expected that each course that is part of the project be taught at least twice during the period of the award where the second time it is adapted and modified based on feedback from the first time it was taught. The PI of a course development project should be scheduled to teach the course initially. Faculty should describe a sustainability plan to ensure the class can continue even if teaching assignments change over time so that the project does not have a short life-time. Project format will follow that of an NSF IUSE proposal, but the project description will be limited to a maximum of 4 pages instead of 15. Proposals should describe how BUILD Scholars will benefit from the curricular innovations.

Proposal Review Process

Each proposal will be evaluated by at least 3 reviewers including 1-2 external scientists (or educators for the Course Development Awards) and then discussed in a panel including both internal and external members. A written summary of the review discussion will be provided along with a ranking/prioritization of the proposals by the panel. The review panel will make recommendations to the Steering Committee and the Co-PIs will then make the final decision for transmission to the appropriate NIH representative.

Anticipated # of Awards

The number of Pilot and Collaborative awards funded will be 3-5, dependent on merit of applications, amount requested and the available budget. It is anticipated that up to 3 - 4 course development awards will be funded, and funding for these awards is dependent on merit of applications, amount requested and available budget.

Award Budget

The budget for the project may not exceed $25,000 in direct costs for Pilot and Collaborative awards.

Allowable expenses will include items such as salary and fringe, summer wages, research supplies, travel, and publication costs. Indirect costs should NOT be included in the proposal budget. For budget development questions, contact your institutional research administrator/business official.

For budget development for collaborative proposals, please consult with the Sponsored Programs office at all institutions to ensure that submission rules are met.

Pilot project funds cannot be used to compensate or provide support to BUILD Scholars GLCAs or PTFs because these students and trainees receive support from a separate award mechanism. Only non-BUILD students may receive compensation for services rendered from Pilot Project funds.

Award Period

The total project period may not exceed two years. No-cost extensions will not be granted.

Section III. Eligibility Information

1. Eligible Organizations and Eligible Individuals

Faculty at any institution in the ReBUILDetroit consortium are eligible to apply under one of the following options.

1) Faculty from any ReBUILDetroit PUI institution can submit a proposal as the PI
2) Collaborative awards must include one or more additional co-investigators from within the ReBUILDetroit Consortium
3) Grants where the PI is eligible under criterion 1 above and all co-Investigators are from institutions outside the ReBUILDetroit consortium are permitted but are classified as Pilot Projects not collaborative projects.

Teams that include investigators from multiple ReBUILDetroit institutions may receive preference if two grants score similarly. Junior faculty may receive preference for funding when projects that score similarly are ranked. That is, scientific merit will be the first and most important criterion but if projects receive similar scores, PIs who are considered "early stage" under NIH criteria (Click for guidance on who qualifies as an early stage investigators) or who are not yet tenured may receive a preference in the final ranking when all else is equal.

Registrations

PIs must work with their institutional officials to register with the eRA Commons or ensure their existing eRA Commons account is affiliated with the eRA Commons account of the applicant organization. Registrations must be complete by the final submission due date, 02/01/2017.

We encourage PIs to complete these registrations at least 4 weeks prior to the application due date.

2. Multiple Principal Investigators

This mechanism will not allow multiple Principal Investigators. Co-investigators are welcome.

3. Number of Applications

Applicants may only submit one application, but an investigator may partner on more than one application, provided he or she is not the Principal Investigator on more than one.

Section IV. Application and Submission Information

1. Application Package
The package will be available when ready from ReBUILDetroit pilot project webpage.

ReBUILDetroit Pilot Grant Submission Site

Applicants should complete internal approval processes at their own institutions before submitting proposals. This process often takes several days and individuals must plan ahead to meet all necessary deadlines.

2. Content and Form of Application Submission

We will announce details about where to upload the application before the due date. Proposals must follow the format of an R03, which uses the instructions in the SF424 (R&R) Application Guide, except where instructed in this funding opportunity announcement to do otherwise. Conformance to the requirements in the Application Guide is required and strictly enforced. Applications that are out of compliance with these instructions may be delayed or not accepted for review.

Page Limitations

All page limitations described in the SF424 Application Guide and the Table of Page Limits must be followed (NIH Guidance on Page Limitations). The 6-page research plan does not include the one-page mentoring plan but does include a required dissemination plan.

Biosketch

Biosketches (http://grants.nih.gov/grants/guide/notice-files/NOT-OD-15-032.html) are required for each investigator and each student and are limited to 5 pages each.

Research Plan Component

All instructions in the SF424 (R&R) Application Guide must be followed, with the following additional instructions:

Memorandum of Understanding

If a collaboration involves a second institution, a memorandum of understanding from the collaborating institution on appropriate institutional letterhead will be required.

Resource Sharing Plan

Individuals are required to comply with requirements for Resource Sharing Plans (Data Sharing Plan, Sharing Model Organisms, and Genome Wide Association Studies; GWAS) as outlined in the SF424 (R&R) Application Guide.

Mentoring Plan

Mentoring Plans are required for any project on which trainees participate. Trainees include: BUILD Scholars, Undergraduate Researchers other than BUILD Scholars, Graduate Students or Post-doctoral trainees. Mentoring plans are limited to 1-page that is not part of the research plan. The mentoring plan should include details regarding how the faculty team will support the intellectual, professional and career development students and other trainees working under the direction of the PI. The mentoring plan will receive a separate score. The mentoring plan is not required for course development proposals unless graduate students or post-doctoral trainees are involved. For mentors with limited experience training students, describe how the ReBUILDetroit Mentor Training professional development opportunities will be part of the plan to help you mentor the BUILD Scholars with whom you will be working.

Dissemination Plan

A dissemination plan is required as part of the research plan. It will be part of the 6-page limit.

Course Development Implementation Plan and Impact Statement

For course development proposals, a course development implementation plan and impact statement must be included as part of the 4-page limit. This content shall include:

- Name(s) and position(s) of the faculty member(s) who will lead the course.
- If the PI is not the only faculty member teaching the course, the additional instructor should be identified as a co-investigator and an NIH biosketch provided.
- A brief description of the course and the department(s) where it will be piloted or incorporated into the curriculum.
- Detailed description of formative and evaluative assessment plan
- Approximate number of students who will take the class annually, and expected impact.

- A statement to attest that there is no project or budgetary overlap or over-commitment (i.e., effort greater than 12 person-months) of faculty supported to work on the proposed projects.
- Awardees should consider using Mid-term Assessments and Course Observation protocols like COPUS as part of their assessment plans to obtain formative feedback on the delivery of their course(s). More information on these approaches can be obtained through the WSU Office for Teaching and Learning.

Appendix

No appendices or supplemental materials will be allowed.

References

References should follow the format required for an SF424 and are not part of the 6-page limit.

3. Submission Dates and Times

The Overview contains information about Key Dates. Applicants are encouraged to submit in advance of the deadline to ensure they have time to make any application corrections that might be necessary for successful submission.

4. Funding Restrictions

All ReBUILDetroit Pilot Project awards are subject to the same terms and conditions as the UL1 Institutional Core parent grant. Pre-award costs are not allowed and projects may not commence until formal approval has been given by NIH.

Pilot project funds cannot be used to compensate or provide financial support to ReBUILDetroit students/trainees. Only non-BUILD Scholars may receive compensation for services rendered.

5. Other Submission Requirements and Information

IRB and IACUC approvals

IRB & IACUC approvals (http://grants.nih.gov/grants/how-to-apply-application-guide/forms-d/supplemental-instructions-forms-d.pdf), if applicable, are required before the final selected proposals are submitted to NIH for approval. If applicable, Human Subjects Training (e.g. that offered by CITI) must be completed by the **April 8, 2017 when the PI Panel Confirms Awards. Please note that Course Development Projects are considered Human Subjects Research as students will be involved and data will be collected. Projects must be cleared through IRB before they can begin.**

Section V. Application Review Information: PILOT and COLLABORATIVE PROPOSALS

1. Criteria

Only the review criteria described below will be considered in the review process. For this particular announcement, note the following:

The ReBUILDetroit RFA will support projects that can be completed in 12-24 months. Because the scope of a pilot project usually is limited, these grant applications do not have to contain extensive detail or discussion. Accordingly, reviewers should evaluate the conceptual framework and general approach to the problem. Appropriate justification for the proposed work can be provided through literature citations, data from other sources, or from investigator-generated data. Preliminary data are not required.

Overall Impact

Reviewers will provide an overall impact/priority score to reflect their assessment of the likelihood of the project exerting a sustained, powerful influence on the research field(s) involved, per NIH's system.

http://grants.nih.gov/grants/peer/guidelines_general/scoring_system_and_procedure.pdf

Reviewers will also use the following scored review criteria as applicable for the project proposed.

Scored Review Criteria

Reviewers will follow NIH's scoring criteria, with a few additions and amendments.

http://www.niaid.nih.gov/researchfunding/grant/strategy/pages/5scoring.aspx

Reviewers will consider each of the review criteria below in the determination of scientific merit, and give a separate score for each. An application does not need to be strong in all categories to be judged likely to have major scientific impact. For example, a project that by its nature is not innovative may be essential to advance a field.

Significance

Does the project address an important problem or a critical barrier to progress in the field? If the aims of the project are achieved, how will scientific knowledge, technical capability, and/or clinical practice be improved? How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field? Will the proposal yield new opportunities for external funding in future? New NIH guidelines on rigor suggest describing "the scientific premise for the proposed project, including consideration of the strengths and weaknesses of published research or preliminary data crucial to the support of your application. Weaknesses in scientific rigor or gaps in transparency that preclude the assessment of scientific rigor should be acknowledged."

Investigator(s)

Are the PIs, collaborators, and other researchers well suited to the project? If Early Stage Investigators or New Investigators, or in the early stages of independent careers, do they have appropriate experience and training? If established, have they demonstrated an ongoing record of accomplishments that have advanced their field(s)? If the project is collaborative, do investigators have complementary and integrated expertise? If senior investigators are included,

do they have the desire to train and mentor junior faculty and students? Does the project involve cross-departmental collaboration within the PI's institution? If so, this may be part of the funding decision as inter-departmental collaboration is key to building institutional capacity for research; however, scientific merit is the first and most important consideration for funding.

Innovation

Does the application challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense? Is a refinement improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed?

Approach

Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project in the one-year time frame? Are potential problems, alternative strategies, and benchmarks for success presented? If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed? Reviewers will be using NIH's new guidelines on rigor and reproducibility, including questions such as 1) "Have the investigators presented strategies to ensure a robust and unbiased approach, as appropriate for the work proposed?" and 2) "Have the investigators presented adequate plans to address relevant biological variables, such as sex, for studies in vertebrate animals or human subjects?

If the project involves clinical research, are the plans for 1) protection of human subjects from research risks, and 2) inclusion of minorities and members of both sexes/genders, as well as the inclusion of children, justified in terms of the scientific goals and research strategy proposed? Is there a dissemination plan and can it be undertaken in a reasonable time line with concrete goals and objectives?

Training and mentoring

Will the project stimulate new research opportunities for junior and/or senior faculty and for students?, Does the mentoring plan required for pilot and collaborative proposals fully outline appropriate mentoring activities for an undergraduate student and does it include adequate oversight of other people who may be mentoring the student other than the PI? Does the proposal include research-training strategies for ReBUILD Scholars or other students who will be directly involved in data collection and analyses? Does the research plan include opportunities for at least one junior investigator to obtain preliminary data for extramural grant applications, collaborations among colleagues at ReBUILD partner institutions, and plans for pursuing extramural funding in priority research areas for NIH?

The questions "How will this proposal advance the research infrastructure at the primary and/or collaborating institutions?" "How will students be mentored through this research project?" and "How will the proposed work advance the careers of junior and/or senior faculty?" should be answered explicitly in the training and mentoring section and wherever else applicable.

Environment and Institutional Enrichment

Will the scientific environment in which the work will be done contribute to the probability of success? Is collaboration with another ReBUILDetroit Institution part of the research? How will those collaborators be part of the project? What form, specifically, will collaboration take, and are these collaborations appropriately budgeted?

As applicable for the project proposed, reviewers will evaluate the following additional items while determining scientific and technical merit, and in providing an overall impact/priority score, but will not give separate scores for these items.

1. Potential for the project to yield necessary preliminary data to allow future applications for competitive grant support (e.g., R03, R01, R18, R21, Career Development Awards, F31 Fellowships, and others).
2. Potential for research to contribute to the elimination of health disparities by increasing the number of trained underrepresented researchers conducting research in NIH priority areas or by increasing knowledge that will contribute to advances in health for underrepresented populations.

Protections for Human Subjects

For research that involves human subjects but does not involve one of the six categories of research that are exempt under 45 CFR Part 46, the committee will evaluate the justification for involvement of human subjects and the proposed protections from research risk relating to their participation according to the following five review criteria: 1) risk to subjects, 2) adequacy of protection against risks, 3) potential benefits to the subjects and others, 4) importance of the knowledge to be gained, and 5) data and safety monitoring for clinical trials.

For research that involves human subjects and meets the criteria for one or more of the six categories of research that are exempt under 45 CFR Part 46, the committee will evaluate: 1) the justification for the exemption, 2) human subjects involvement and characteristics, and 3) sources of materials. For additional information on review of the Human Subjects section, please refer to the Human Subjects Protection and Inclusion Guidelines.

Inclusion of Women, Minorities, and Children

When the proposed project involves clinical research, the committee will evaluate the proposed plans for inclusion of minorities and members of both genders, as well as the inclusion of children. For additional information on review of the Inclusion section, please refer to the Human Subjects Protection and Inclusion Guidelines.

Vertebrate Animals

The committee will evaluate the involvement of live vertebrate animals as part of the scientific assessment according to the following five points: 1) proposed use of the animals, and species, strains, ages, sex, and numbers to be used; 2) justifications for the use of animals and for the appropriateness of the species and numbers proposed; 3) adequacy of veterinary care; 4) procedures for limiting discomfort, distress, pain and injury to that which is unavoidable in the conduct of scientifically sound research including the use of analgesic, anesthetic, and tranquilizing drugs and/or comfortable restraining devices; and 5) methods of euthanasia and reason for selection if not consistent with the AVMA Guidelines on Euthanasia. For additional information on review of the Vertebrate Animals section, please refer to the Worksheet for Review of the Vertebrate Animal Section.

Biohazards

Reviewers will assess whether materials or procedures proposed are potentially hazardous to research personnel and/or the environment, and if needed, determine whether adequate protection is proposed.

Authentication of Key Biological and/or Chemical Resources

For projects involving key biological and/or chemical resources, reviewers will comment on the brief plans proposed for identifying and ensuring the validity of those resources, per NIH's new guidelines.

Budget and Period of Support

Reviewers will consider whether the budget and the requested period of support are fully justified and reasonable in relation to the proposed research.

2. Review and Selection Process

The ReBUILD Pilot Project Program will replicate the NIH review process for extramural funding, with certain important modifications. The Panel will occur via teleconference. However, all applications that are complete and responsive to application guidelines will be reviewed and scored. Junior faculty not familiar with the NIH peer-review process can learn about it here:

https://www.youtube.com/watch?v=fBDxI6I4dOA&feature=youtu.be

Applications will be evaluated for scientific and technical merit, as well as on all other criteria described above.

Section VI. Application Review Information – COURSE DEVELOPMENT PROPOSALS

Course Development Projects should contribute to the following broad goals:

- Improve STEM Learning & Learning Environments: Improve the knowledge base for defining, identifying, and innovating effective undergraduate STEM education teaching and learning, and foster widespread use of evidence-based resources and pedagogies in undergraduate STEM education.
- Broaden Participation & Institutional Capacity for STEM Learning. Increase the number and diversity of undergraduate students recruited and retained in STEM education and career pathways through improving the evidence base for successful strategies to broaden participation and implementation of the results of this research.
- Build the Professional Biomedical Workforce for Tomorrow: Improve the preparation of undergraduate students so they can succeed as productive members of the future Biomedical Research workforce, regardless of career path, and be engaged as members of a STEM-literate society.

The Course Development Projects mirror the NSF IUSE Engaged Student Learning Track. This track focuses on design, development, and implementation studies that involve the creation,

exploration, or implementation of tools, resources, and models that show particular promise to increase engagement of undergraduate students in their STEM learning and lead to measurable and lasting learning gains. The undergraduate audience for IUSE projects includes students at two- and four-year schools, both declared and undeclared STEM majors, students whose courses of study require solid skills and knowledge of STEM principles, and students seeking to fulfill a general education requirement in STEM.

A strategic objective is to foster integration of research and education, to improve a national innovation ecosystem. Investment in building the knowledge that informs improvements in STEM teaching and learning is one component of realizing this goal. Broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, is essential to the health and vitality of science.

Merit Review Principles and Criteria

The merit review process incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to promote the progress of science; to advance the national health, prosperity, and welfare.

Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by program staff when determining whether or not to recommend proposals for funding. The following three principles apply broadly:

- All projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- Projects should contribute broadly to achieving societal goals. Project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

Merit Review Criteria

These projects must justify how they will help prepare BUILD Scholars for careers in biomedical research broadly defined. They must be evidence-based, using student-centered pedagogy and

supported by education research. They should describe the relevant change theory in which they are grounded such that they will positively impact the relevant department, unit or program. Specific metrics and goals should be identified for the success of the project.

When evaluating these proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions to curricular changes that support student success in the biomedical and related fields.

1. What is the potential for the proposed activity to a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Reviewer and an Internal Panel discussion.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be completed and submitted by each reviewer and/or panel. After scientific, technical and programmatic review and consideration of appropriate factors, the PIs will recommend whether the proposal should be declined or recommended for award.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, will be sent to the Principal Investigator. In addition, the proposer will receive an explanation of the decision to award or decline funding based on the panel discussion.

Protections for Human Subjects

For research that involves human subjects but does not involve one of the six categories of research that are exempt under 45 CFR Part 46, the committee will evaluate the justification for involvement of human subjects and the proposed protections from research risk relating to their participation according to the following five review criteria: 1) risk to subjects, 2) adequacy of

protection against risks, 3) potential benefits to the subjects and others, 4) importance of the knowledge to be gained, and 5) data and safety monitoring for clinical trials.

For research that involves human subjects and meets the criteria for one or more of the six categories of research that are exempt under 45 CFR Part 46, the committee will evaluate: 1) the justification for the exemption, 2) human subjects involvement and characteristics, and 3) sources of materials. For additional information on review of the Human Subjects section, please refer to the Human Subjects Protection and Inclusion Guidelines.

Note that education research often involves your students as human subjects and approval is usually required to collect data necessary to publish educational research on course development projects.

Inclusion of Women, Minorities, and Children

When the proposed project involves clinical research, the committee will evaluate the proposed plans for inclusion of minorities and members of both genders, as well as the inclusion of children. For additional information on review of the Inclusion section, please refer to the Human Subjects Protection and Inclusion Guidelines.

Vertebrate Animals

The committee will evaluate the involvement of live vertebrate animals as part of the scientific assessment according to the following five points: 1) proposed use of the animals, and species, strains, ages, sex, and numbers to be used; 2) justifications for the use of animals and for the appropriateness of the species and numbers proposed; 3) adequacy of veterinary care; 4) procedures for limiting discomfort, distress, pain and injury to that which is unavoidable in the conduct of scientifically sound research including the use of analgesic, anesthetic, and tranquilizing drugs and/or comfortable restraining devices; and 5) methods of euthanasia and reason for selection if not consistent with the AVMA Guidelines on Euthanasia. For additional information on review of the Vertebrate Animals section, please refer to the Worksheet for Review of the Vertebrate Animal Section.

Biohazards

Reviewers will assess whether materials or procedures proposed are potentially hazardous to research personnel and/or the environment, and if needed, determine whether adequate protection is proposed.

Authentication of Key Biological and/or Chemical Resources

For projects involving key biological and/or chemical resources, reviewers will comment on the brief plans proposed for identifying and ensuring the validity of those resources, per NIH's new guidelines.

Budget and Period of Support

Reviewers will consider whether the budget and the requested period of support are fully justified and reasonable in relation to the course development project.

Section VII. Award Administration Information

1. Administrative and National Policy Requirements

All NIH grant and cooperative agreement awards include the NIH Grants Policy Statement as part of the Notice of Award. For these terms of award, see the NIH Grants Policy Statement Part II: Terms and Conditions of NIH Grant Awards, Subpart A: General and Part II: Terms and Conditions of NIH Grant Awards, Subpart B: Terms and Conditions for Specific Types of Grants, Grantees, and Activities. More information is provided at Award Conditions and Information for NIH Grants.

2. Reporting Requirements

To ensure that the goals of the ReBUILD Pilot Project Program are met, all awardees will submit Biannual progress reports describing their accomplishments toward project completion (see Key Dates). In addition, investigators will submit a final report summarizing both the research and training elements of the project. Reports should document the ways in which the funded project stimulated research productivity with respect to new proposals for external support, scholarly publications, and presentations at academic conferences that are attributable to the work, as well as other details and deliverables detailed in the Notice of Award and in the biannual report form. Project reports will be submitted via webform. A template for these reports will be available at least one month in advance of the initial progress report.

3. Expectations for Project Deliverables

Faculty and institutional development initiatives to increase research capacity and infrastructure, so that more undergraduate research training opportunities will be available to traditionally underrepresented students pursuing biomedical, behavioral, social, and clinical research careers, are an important part of ReBUILDetroit. ReBUILD Pilot Project grants are meant to support faculty in developing and implementing research projects that provide a foundation, through preliminary data and feasibility testing, for future successful proposals for external funding from federal agencies.

ReBUILDetroit Pilot

Projects also are intended to support faculty career development with respect to generating and disseminating high quality research. In keeping with these overarching aims, the following are general expectations of all funded ReBUILD Pilot Project investigators:

- Identify external funding opportunities to continue your research
- Complete and share a rough draft of a grant application
- Develop a dissemination plan for pilot project findings
- Present pilot project findings at the ReBUILD Research Day Symposium
- Submit journal manuscript(s) based on pilot project research
- Register on NRMNet (to be a mentor and/or to receive a mentor)
- Participate in ReBUILD Pilot Project workshops, including an orientation workshop for grantees (time/location TBD), where award requirements and general expectations will be discussed.

Section VIII. Institutional Contacts

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Application Checklist

APPLICATION PACKAGE	COMPLETED
SF 424 (R&R)	
PHS 398 Research Plan	
Specific Aims	
Research Strategy	
Separate one-page Mentoring Plan	
Human Subjects Sections (if applicable)	
Protection of Human Subjects	
PHS Inclusion Enrollment Report	
Inclusion of Women and Minorities	
Inclusion of Children	
Other Research Plan Sections (if applicable)	
Vertebrate Animals (if applicable)	
Consortium/Contractual Arrangements (if applicable)	
Letters of Support (if applicable)	
Resource Sharing Plan	
Authentication of Key Biological and/or Chemical Resources (if applicable)	
PHS 398 Cover Page Supplement	
SF 424 (R&R) Senior/Key Person Profile Form	
Biographical Sketch(es)	
SF 424 (R&R) Other Project Information Form	
Project Summary/Abstract	
Project Narrative	
Bibliography and References Cited	
Facilities & Other Resources	
Other Attachments (Mentoring Plan)	
SF 424 (R&R) Project/Performance Site Locations Form	
Research & Related Budget	
Budget Justification (personnel and non- personnel costs)	
INTERNAL FORMS & PROCESSES COMPLETED	
Institutional Approval Form	
Internal Detailed Budget	
Subrecipient Assurance Form (if applicable)	

Subrecipient Detailed R & R Budget and Justification (if applicable)	
Subrecipient Statement of Work (if applicable)	