BRIDGES TO THE BACCALAUREATE PROGRAM (R25) PLANNING DOCUMENT

Prepared for Xavier University of Louisiana

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Summary: The Bridges to Baccalaureate (BtoB) Program supports research education activities in the mission areas of the NIH. The over-arching goal of the program is to support educational activities that enhance the diversity of the biomedical research workforce. The BtoB program specifically focuses on community college students and seeks to develop and implement an integrated plan of individual and institutional activities that will increase students' preparation and skills as they pursue baccalaureate degrees in biomedical sciences. Grantees are expected to offer the following educational activities: 1) courses for skills development, 2) research experiences, and 3) curriculum or methods development. A program application **must include each activity** and describe how they will be synergized to make a comprehensive program. The program requires partnerships between a community college or other two-year post-secondary educational institution granting an associate degree and a four-year college or university offering the baccalaureate degree. There must be a PI listed from each institution (a Lead/Contact PI and a Partner PI). Student participants must be nationally underrepresented individuals enrolled full-time in an Associate's Program.

Keys for an Ideal Program competitive for funding[1]:
- Baseline data from previous 5 years
- Institutional self-assessment
- Measurable outcomes based on improving baseline data and meeting identified needs
- Student development activities that are interrelated and integrated into the institution
- Strong commitment from the institution to support the program
- Formal articulation agreement between the partner colleges or universities

Application Deadlines: September 25, 2017

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[1] National Institute of General Medical Sciences. The Bridges Programs Webinar. 18 August 2016

Previous Grantees:

The long-term goal of the *San Diego Mesa College's Bridges Program* is to increase the pool of community college students from underrepresented (UR) groups in the biomedical and behavioral sciences who go on to pursue research careers in these fields. The short-term goal of the program is to increase the number of students who transition from a two-year institution to a four-year institution with subsequent baccalaureate degree completion. San Diego Mesa College is dedicated to supporting the ongoing increase in the transfer rate of UR students in the sciences through an established transfer admission relationship with UCSD. UCSD is strongly committed to the Bridges partnership by providing administrative guidance, faculty-mentored research laboratory facilities, peer mentoring during the Bridges Program, and focused post-transfer academic support designed to enhance student retention. The objective is to develop and implement an integrated plan of individual and institutional activities that will increase students' preparation and skills as they advance academically in the pursuit of baccalaureate and more advanced degrees in biomedical and behavioral sciences. The specific aims of the program over a ten- year period are: 1) to transfer at least 70 percent of the Bridges students to a four-year university, 2) to ensure that 75 percent of Bridges students will earn a baccalaureate degree in the biomedical or behavioral sciences, and 3) to increase the overall transfer admission rate of UR students majoring in the biomedical or behavioral sciences from San Diego Mesa College to UCSD and other baccalaureate degree-granting universities by 10 percent per year. The core component of the program is an eight-week, intensive summer internship at UCSD followed by ongoing mentored research experience in laboratories at UCSD. The developmental activities at San Diego Mesa College are based around curricula and workshops designed to enhance college success, basic skills, and research expertise. These developmental activities will prepare students to engage in productive learning during their summer internship at UCSD. The program goal is consistent with the national goals of the Bridges Program in that there will be a substantial increase in the number of students that transfer in the biomedical and behavioral sciences to UCSD and other four-year universities.

The *UMD Bridges to the Baccalaureate Degree Program* is a collaborative project between the University of Minnesota Duluth (UMD) and two regional community colleges, Fond du Lac Tribal and Community College (FDLTCC) and Lake Superior College (LSC). This collaboration will provide research experiences and supplementary academic support for underrepresented students working toward a science degree. The objective is to increase the number of community college students entering the science field who obtain a biomedical/bio-behavioral related baccalaureate degree. Since the UMD Bridges Program is strategically located within a geographical region containing a number of Native American reservations and urban clusters, the program will actively recruit and encourage Native American and other underrepresented groups to complete their associate degree and transfer to UMD to complete a baccalaureate degree. The program will provide academic counseling, career planning and facilitate a seamless transfer from the community college to the University. The goal is to decrease the amount of time spent completing the baccalaureate degree. Ideally, the program will apply Early Intervention Measures to identify, motivate and sponsor enrichment activities to newly entering students at

FDLTCC and LSC. Once students have entered the Bridges program they will enter a Summer Research Academy, which stresses development of professional skills such as communication, critical thinking, quantitative analysis, life-long learning, persistence and integrity. The initial research training started in the Summer Research Academy, will begin with team science projects called Collaborative Learning Workshops, and will hone skills of leadership, observation and data collection, and how to use the Scientific Method. Trainees will then progress into Faculty-Directed Research projects at UMD to give them exposure to the academic research environment. Academic year trainees will also participate in monthly science seminars, weekly current event science sessions, Bridges meetings and social gatherings.

Checklist: The following checklist describes all required components of the application.[2]

Complete	Component
	<u>SF 424 R&R Form</u>: The SF 424 (R&R) Form is used in all grant applications. This form collects information including type of submission, applicant information, type of applicant, and proposed project dates.
	<u>PHS 398 Cover Page Supplement</u>: The PHS 398 Cover Page Supplement Form is used for all grant applications except Fellowships. This form collects information on human subjects, vertebrate animals, program income, human embryonic stem cells, inventions and patents, and change of investigator/change of institution.
	<u>R&R Other Project Information Form</u>: The Other Project Information Form is used for all grant applications. This form includes questions on the use of human subjects and vertebrate animals, as well as fields to **upload an abstract, project narrative, references, equipment lists, and facilities descriptions.**
	<u>Project Summary/Abstract (attachment)</u>: **30 lines of text maximum**. State the application's broad, long-term objectives and specific aims, referring to the health relatedness of the project (i.e., relevance to the mission of the agency). Describe the research design and methods for achieving the stated goals. Be sure that the project summary reflects the key focus of the proposed project so that the application can be appropriately categorized. Will be public domain. p. R-39
	<u>Project Narrative (attachment)</u>: Using no more than **two or three** sentences, describe the relevance of this research to public health. For example, NIH applicants can describe how, in the short or long term, the research would contribute to fundamental knowledge about the nature and behavior of living systems and/or the application of that knowledge to enhance health, lengthen life, and reduce illness and disability. Will be public domain. P. R-40
	<u>Bibliography & References Cited (attachment)</u>: Include any references cited in Section R.400 - PHS 398 Research Plan Form. When citing articles that fall under the Public Access Policy, were authored or co-authored by the applicant and arose from NIH support, provide the NIH Manuscript Submission reference number (e.g., NIHMS97531) or the PubMed Central (PMC) reference number (e.g., PMCID234567) for each article. If the PMCID is not yet available because the Journal submits articles directly to PMC on behalf of their authors, indicate "PMC Journal – In Process." A list

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[2] For complete detailed instructions of each required component, it is recommended that you consult the SF-424 Guide.

	of these journals is posted at: http://publicaccess.nih.gov/submit_process_journals.htm. P. R-40
	<u>Equipment (attachment):</u> List of major equipment already available for project; list location and pertinent capabilities. p. R-41
	<u>Facilities & Other Resources (attachment)</u>: For the BtoB R25, the following information must be included: • Describe the educational environment, including the facilities, laboratories, participating departments, computer services, and any other resources to be used in the development and implementation of the proposed program for both institutions. List all thematically related sources of support for research training and education following the format for Current and Pending Support.
	<u>Other Attachments:</u> Advisory Committee: An Advisory Committee is **NOT** a required component of a Research Education program. However, if you develop one, you should provide a plan for the appointment of an Advisory Committee to monitor progress of the research education program. The composition, roles, responsibilities, and desired expertise of committee members, frequency of committee meetings, and other relevant information should be included. Describe how the Advisory Committee will evaluate the overall effectiveness of the program. Proposed Advisory Committee members should be named in the application if they have been invited to participate at the time the application is submitted. Please name your file "Advisory_Committee.pdf" Tables: The following Tables are required for new applications: Data Table 2. Participating Faculty Members, Undergraduate Training Table, as applicable Data Table 8D (Part II only). Program Outcomes: Undergraduate Table forms are available at https://grants.nih.gov/grants/forms/data-tables.htm Please name your file as "Table X.pdf" where 'X' represents the Table number (e.g. "Table2.pdf"). filename provided for each "Other Attachment" will be the name used for the bookmark in the electronic application in eRA Commons.
	<u>Project /Performance Site Location(s) Form</u>: The Project/Performance Site Location(s) Form is used for all grant applications. Indicate the primary site where the work will be performed. If a portion of the project will be performed at any other site(s), identify the site location(s) in the blocks provided. p. R-43
	<u>R&R Senior/Key Person Profile (Expanded) Form</u>: The Senior/Key Person Profile (Expanded) Form is used for all grant applications, and allows the collection of data for all senior/key persons associated with the project. The information for the PD/PI is pre-populated from the SF424 (R&R) form. See instructions in Section R.200 - SF 424 (R&R) Form if these fields are empty. **Biographical sketches are to be uploaded using this form**. p. R-47
	<u>Biographical Sketches</u>: (attachment; 5-page limit for each Senior/Key personnel) Include biographical sketches of all senior/key personnel and Other Significant Contributors; Use the sample format on the Biographical Sketch Format Page to prepare this section for all grant applications. Complete the education block at the top of the format page

	beginning with the baccalaureate or other initial professional education, such as nursing. Include postdoctoral training, separately referencing residency and clinical fellowship training, if applicable. p. R-50
	R&R Budget Form: The R&R Budget form includes three separate data entry screens: (1) Sections A and B; (2) Sections C through E; and (3) Sections F through K. To navigate between the various screens, use the Previous and Next buttons at the top of the form or use the scroll bar on the side of the screen. Complete the R&R Budget form following the instructions provided. You must complete a separate detailed budget for each year of support requested. The form will generate a cumulative budget for the total project period. If no funds are requested for a required field, enter "0." • Include all personnel other than the PD(s)/PI(s) in the Other Personnel section, including clerical and administrative staff. • Bridges Student Participants: State the number of Bridges students from each partner institution and the total number of Bridges students to be supported by the proposed research education program during the academic year and summer. • Travel: Include travel for Bridges students in this section. • Participant/Trainee Support Costs: Participant/Trainee Support Costs are not applicable to the Bridges to the Baccalaureate program. The Bridges student salaries and fringe benefits are included under section B (Other Personnel). • If a program coordinator(s) is included, their duties and responsibilities must be well described in the budget. While the dollar fields allow cents to be entered, all dollar fields should be presented in whole numbers. Please round to the nearest whole number. **The Budget Justification is to be uploaded using this form.** Additionally, information about the budget can be found in the [BtoB announcement](#).
	R&R Budget Justification (attachment): Use the budget justification to provide the additional information requested in each budget category identified above and any other information the applicant wishes to submit to support the budget request. The following budget categories must be justified, where applicable: equipment, travel, participant/trainee support and other direct cost categories. Only one file may be attached. The attachment is required. p. R-69
	R&R Subaward Budget Attachment(s) Form 5 YR 30 ATT: The R&R Subaward Budget Attachment (s) Form is required. One of the participating institutions must be designated as the lead applicant institution and funding for the other institution(s) in the partnership must be requested via a subcontract to be administered by the applicant institution. When submitting a detailed budget, the applicant institution should submit its budget using the Research & Related Budget form. All other institutions should have their individual budgets attached separately to the Research & Related Subaward Budget Attachment(s) Form. See the SF424 (R&R) Application Guide for further instruction regarding the use of the subaward budget. A complete

	subaward/consortium budget form (including the budget justification section) should be completed by each consortium grantee organization.
	PHS 398 Research Plan Form: This form includes **fields to upload several attachments, including the specific aims and research strategy**. The Research Plan should include sufficient information needed for evaluation of the project, independent of any other document (e.g., previous application). Be specific and informative, and avoid redundancies. P. R-79
	Specific Aims (attachment): **1-page limit**; State concisely the goals and objectives of the proposed plan based on self-assessment and in measurable terms. Summarize the expected outcome(s), including the impact that the results of the proposed training will exert on the biomedical research workforce, p. R-80
	Research Strategy (attachment): **25 page max**; (a. significance, b. innovation, c. approach) For complete, detailed instructions, please see p. R-81 The Research Strategy section must be used to upload the **Research Education Program Plan**, which must include the following components described below:**:** Proposed Research Education Program Program Director/Principal Investigator (Multiple PD/PI plan as separate attachment) Program Faculty Program Participants Institutional Environment and Commitment Recruitment Plan to Enhance Diversity Plan for Instruction in the Responsible Conduct of Research Evaluation Plan/Program Assessment Dissemination Plan
	Human Subjects Section (if applicable): *Protection of Human Subjects (attachment)*: Complete this section if you answered "yes" to the question "Are human subjects involved?" on the Section R.220 - R&R Other Project Information form. If the answer is "No" to the question but your proposed research involves human specimens and/or data from subjects, you must provide a justification in this section for your claim that no human subjects are involved. Follow the instructions provided in the Application Guide and the FOA regarding the Protection of Human Subject attachment. p. R-84 *Data Safety Monitoring Plan (attachment)*: Complete this section if you answered "yes" to Item 1, Clinical Trial of the Section R.210 - PHS 398 Cover Page Supplemental Form. p. R-84 *Inclusion of Women and Minorities (attachment)*: Refer to Supplemental Instructions, Part II. This section is required for applicants answering "yes" to the question "Are human subjects involved?" on the Section R.200 - R&R Other Project Information form and the research does not fall under Exemption 4. Also, please refer to Section R.500 - PHS Inclusion Enrollment Report of these instructions as well as the Supplemental Instructions, Part II (Section 4.2, 4.3, and 5.6) for more information on submitting PHS Inclusion Enrollment Report form as part of your application. p. R-84

	Inclusion of Children (attachment): Refer to Supplemental Instructions, Part II (Section 4.4 and 5.8). This section is required for applicants answering "yes" to the question "Are human subjects involved?" on the Section R.200 - R&R Other Project Information form and the research does not fall under Exemption 4. p. R-85
	Other Research Plan Section (if applicable): *Vertebrate Animals (attachment)*: Complete this section if you answered "yes" to the question "Are Vertebrate Animals Used?" on the Section R.200 - R&R Other Project Information form. p. R-85 *Select Agent Research (attachment)*. p. R-86 *Multiple PD/PI Leadership Plan (attachment)*: A Multi PD/PI plan is **required**. For applications designating multiple PD/PIs, all such individuals must be assigned the PD/PI role on the Senior/Key Profile form, even those at organizations other than the applicant organization. The governance and organizational structure of the leadership team and the research project should be described, including communication plans, process for making decisions on scientific direction, and procedures for resolving conflicts. The roles and administrative, technical, and scientific responsibilities for the project or program should be delineated for the PD/PIs and other collaborators. Do not submit a leadership plan if you are not submitting a Multiple PD/PI application. If budget allocation is planned, the distribution of resources to specific components of the project or the individual PD/PIs should be delineated in the Leadership Plan. In the event of an award, the requested allocations may be reflected in a footnote on the Notice of Grant Award. pp. R-87 *Consortium/Contractual Arrangements (attachment)*: Explain the programmatic, fiscal, and administrative arrangements to be made between the applicant organization and the consortium organization(s). If consortium/contractual activities represent a significant portion of the overall project, explain why the applicant organization, rather than the ultimate performer of the activities, should be the grantee. p. R-88 *Letters of Support (attachment)*: Attach all appropriate letters of support, including any letters necessary to demonstrate the support of consortium participants and collaborators such as Senior/Key Personnel and Other Significant Contributors included in the grant application. Letters are not required for personnel (such as research assistants) not contributing in a substantive, measurable way to the scientific development or execution of the project. Letters should stipulate expectations for co-authorship, and whether cell lines, samples or other resources promised in the letter are freely available to other investigators in the scientific community or will be provided to the particular investigators only. For consultants, letters should include rate/charge for consulting services and level of effort/number of hours per year anticipated. In addition, letters ensuring access to core facilities and resources should stipulate whether access will be provided as a fee-for-service. Do not place these letters in the Appendix. Consultant biographical sketches should be in the Biographical Sketch section. p. R-88

	Resource Sharing Plans (attachment): NIH considers the sharing of unique research resources developed through NIH-sponsored research an important means to enhance the value and further the advancement of the research. When resources have been developed with NIH funds and the associated research findings published or provided to NIH, it is important that they be made readily available for research purposes to qualified individuals within the scientific community. See Supplemental Instructions, Part III 1.5. pp. R-89 **For the R25 award, individuals are required to comply with the instructions for the Resource Sharing Plans also, when relevant,** applications are expected to include a software dissemination plan if support for development, maintenance, or enhancement of software is requested in the application. *Authentication of Key Biological and/or Chemical Resources (attachment)*: If applicable to the proposed science, briefly describe methods to ensure the identity and validity of key biological and/or chemical resources used in the proposed studies. No more than one page is suggested. p. R-90
	<u>Appendix:</u> For applications submitted for due dates on or after January 25, 2017: The only allowable appendix materials are: For applications proposing clinical trials (unless the FOA provides other instructions for these materials): Clinical trial protocols l Investigator's brochure from Investigational New Drug (IND), as appropriate. For all applications: Blank informed consent/assent forms Blank surveys, questionnaires, data collection instruments FOA-specified items p. R-91
	<u>PHS 398 Inclusion Enrollment Report</u>: Used for all applications involving NIH-defined clinical research. This form is used to report both planned and cumulative (or actual) enrollment, and describes the sex/gender, race, and ethnicity of the study participants. p. R-93
	<u>PHS Assignment Request Form</u>: The optional Assignment Request Form may be used to communicate specific application assignment and review requests to the Division of Receipt and Referral (DRR) and to Scientific Review Officers (SROs). P. R-97

Data Collection Needed for Proposal

1. Gather baseline data for underrepresented students in biomedical sciences from all partnering institutions over the last 5 years (Included as a part of the Research Plan under Institutional Environment and Commitment)
   a. Number of community college students enrolled
   b. Number of students transferred into a four-year institution
   c. Number of transferred students who completed the BA/BS degree over the previous five-year period

    d.   % underrepresented and non-underrepresented students in each category

    Note: If you don't have institutional baseline data, you will need to explain how you plan to obtain it

2.   Gather information regarding the distribution of participating faculty by academic rank, department or interdepartmental program, areas of research emphasis, and the rationale for the faculty selected to participate in the training grant (Included as Other Attachment; Table 2).
3.   Gather information about active Biomedical Science-related academic programs (i.e. PREP, RISE, MARC USTAR, BUILD, IMSD) to include start and end project dates, funding source, number of participants, target participant eligibility and program disciplines included (Included as part of the Research Plan and labeled Table A)
4.   Report outcomes of recent undergraduates including the name of the student, name of faculty mentor, start date, summary of support provided, degree received and years to degree, topic of research project, initial position in department institution activity, current position in department institution activity, subsequent grants or roles and year awarded (Included as Other Attachment; Table 8D Part II)

Planning Questions: The following questions have been developed to guide the production of your proposal for each required section of the Research Strategy/Research Education Program Plan.

Proposed Research Education Program

1.   What are barriers and obstacles faced by underrepresented students at each institution?
2.   What training or education programs are being used to address these barriers?
3.   What gaps exist in these current programs?
4.   What is your proposed solution (e.g. strategies you attempt to use, faculty support, other programs it will build on)?
    a.   Identify areas selected for improvement, and rationale for incorporating:
        i.   Courses for skills development
        ii.   Research experiences
        iii.   Curriculum or Methods Development
5.   How will existing programs be leveraged? How will the new activities be incorporated with the existing activities to achieve the program goals?
6.   Will there be an advisory committee? If so, who will compose the advisory committee? What will their responsibilities be and how often will they meet?
7.   What courses will be offered to students? What skills will they learn from participating in these courses? How will these courses prepare them for biomedical research careers?
8.   In what research opportunities will students be invited to participate? How will faculty be involved in research? How long will students be required to participate in research?
9.   What curriculum or methods will you develop as part of the Education Program?

10. What support services (mentoring, tutoring, housing, etc.) will be offered to students?
11. What overall impact/benefits will the program have on the trainees, faculty and institutions?
12. How does your program differ from existing programs or fill a gap? What is innovative about the distinctive strategies you plan to use to educate students in the biomedical sciences?

Program Director/ Principal Investigator

1. Who will lead the project? What are their academic and administrative qualifications?
2. How do you envision the organizational structure of the leadership team? Who will be the contact PI?
3. What are the Principal Investigator's roles (administrative, technical, and scientific)?
4. By which means will you communicate and how often?
5. How will you make decisions regarding scientific direction?
6. How will conflicts or disagreements be resolved?

Program Faculty

1. What faculty (from each institution) have committed to this program?
2. What is their research expertise (including external research funding) and mentoring experience?
3. What role will each faculty member have in the program?

Program Participants and Diversity Recruitment Plan

1. From what academic programs or institutions will you recruit students? How many eligible students have been in those programs or at that institution(s), on average, over the past five years?
2. How many students has the university enrolled annually over the past five years? What has been the ethnic, racial and socio-economic background of these students?
3. What percentage of underrepresented undergraduate students transfer and subsequent graduate in biomedical and behavioral sciences, on average?
4. What means will you use to recruit students to the program? How will you enhance recruitment of underrepresented students?
5. How many students will you enroll in the proposed BtoB program annually and in total?
6. What is your expected attrition rate?
7. What selection criteria will be used to enroll students in the program? Who will select students?
8. What will be the requirements for continued participation in the program?
9. How will students be paired with mentors?
10. How will you encourage retention of students?

Institutional Environment and Commitment

1. What university and non-university partnerships will be key to this program? What do each of the program partners bring to the program? Have you or will you obtain letters of support from these partners?
2. How geographically close are the partner institutions? What factors led you to choose your partner institution(s)?
3. Describe the biomedical and behavioral sciences-related disciplines in which associate degree programs are offered at the two-year institution(s) and the relevant curricula.
4. Describe the biomedical and behavioral sciences-related disciplines in which bachelor's degree programs are offered at the baccalaureate institution(s), and the relevant curricula and general degree requirements.
5. What expertise do the institutions have in administering similar programs targeting underrepresented students?
6. What mentoring, student advising and career counseling services/programs are available at each institution, and what are their successes in preparing and graduating underrepresented students?
7. How will senior leadership, Department Chairs, Deans etc. at each institution offer their support and commitment to the Program? Have you or will you obtain letters of support from these leaders?
8. To what facilities (e.g. library, career center) will students have access?
9. How will a seamless transition from the participating community college(s) to the bachelor's degree-granting institution(s) be ensured?
10. What is the status of a formal articulation agreement for the transfer of courses and credits between the two institutions?
11. What financial and other support will be available to Bridged students

Responsible Conduct of Research (See NOT-OD-10-019 Requirement for Instruction in the Responsible Conduct of Research)

1. How will you format research conduct training? What content will be presented?
2. How will faculty be involved?
3. How long will the training last?
4. How often will the training be provided?

Evaluation Plan

1. What system will you use to monitor student participant progress?
2. How will you measure outcomes (i.e. number of applications, number of students accepted, number of students bridged, number of student graduating with type of degree)?
3. How will you identify strengths and weaknesses along the way?

4. How will you take advantage of NIGMS CareerTrac to track student progress?