# NSF EPSCoR RESEARCH INFRASTRUCTURE IMPROVEMENT: Cyber-Enabled Materials, Manufacturing, and Smart Systems

# Request for Proposals

**DEADLINE DATES:** 

Notices of Intent due: October 17, 2018

Last day for questions and answers about this RFP: November 19, 2018

Proposals due: December 17, 2018





THE BOARD OF REGENTS and THE NATIONAL SCIENCE FOUNDATION ESTABLISHED PROGRAM TO STIMULATE COMPETITIVE RESEARCH (EPSCoR)

Issue Date: June 29, 2018

1201 North Third Street, Suite 6-200 Baton Rouge, Louisiana 70802 (225) 342-4253 www.laregents.org

## I. INTRODUCTION

#### I.A. PURPOSE OF THIS RFP

The Louisiana Established Program to Stimulate Competitive Research (LA EPSCoR) solicits proposals in the area of Cyber-Enabled Materials, Manufacturing, and Smart Systems with a focus on the development of strong interdisciplinary and multi-institutional collaborations that leverage major State investments in science and technology (S&T), particularly in materials, cyberinfrastructure and advanced manufacturing. The ultimate goal of the proposed effort is the development of a sustainable national center of excellence. A successful project must include compelling strategies for utilizing the diverse human, physical, and technological resources within Louisiana. Extensive strategic planning is required. To this end, proposals must feature meaningful involvement by multiple research campuses, including an explicit and transparent research role for minority-serving institutions and meaningful linkages to community colleges. Plans for ensuring diversity, mentoring of postdoctoral researchers, workforce development, outreach and communication, evaluation and assessment, and long-term sustainability are required.

Because a high level of planning, collaboration, and meaningful intellectual contributions will be required from project participants, individuals listed as Principal Investigator (PI) or Co-Principal Investigator (Co-PI) on a proposal cannot participate in another proposal submitted under this RFP. Prospective applicants are strongly encouraged to consult with their Vice President/Vice Chancellor for Research (VPR/VCR) regarding their planned proposal submission for this competition.

Proposals will be reviewed by a panel of out-of-state experts who will use the criteria outlined in the most recent NSF solicitation to select the most competitive proposal for submission to NSF. The objective of this RFP is to identify a comprehensive initiative—encompassing research, education and outreach, workforce development, and other components as outlined in Section III.F—that can be incorporated as part of a five-year statewide Research Infrastructure Improvement (RII) Track 1 proposal. This proposal will be submitted by LA EPSCoR to the National Science Foundation (NSF). The anticipated due date is July 2019 but is subject to change once the actual solicitation is released. Funding for the statewide program is contingent upon Louisiana receiving an EPSCoR award. The program will be administered through the Board of Regents' (BoR) Office of Sponsored Programs and will operate under the auspices of the State EPSCoR Committee, led by the LA EPSCoR Project Director.

## I.B. EPSCoR GOALS

The overarching goals of the EPSCoR program are: 1) to provide strategic programs and opportunities for EPSCoR participants that stimulate sustainable improvements in their R&D capacity and competitiveness; and 2) to advance science and engineering capabilities in EPSCoR states for discovery, innovation, and overall knowledge-based prosperity. NSF EPSCoR's Research Infrastructure Improvement (RII) program is designed to achieve these goals.

#### I.C. NSF SOLICITATION PENDING

Prospective applicants should note that NSF has not yet issued the EPSCoR RII Track-1 solicitation for fiscal year 2020. It is expected that the upcoming solicitation will be similar to the previous year's solicitation (NSF 18-558), which is available at: <a href="https://www.nsf.gov/pubs/2018/nsf18558/nsf18558.htm">https://www.nsf.gov/pubs/2018/nsf18558/nsf18558.htm</a>. This RFP is based upon the criteria contained in solicitation number NSF 18-558. If the new solicitation contains conditions or provisions that require specific changes to this RFP (including timeline), a notification will be posted to the BoR website at <a href="https://web.laregents.org/">https://web.laregents.org/</a> and disseminated to the campuses through the EPSCoR Committee members and Vice Presidents/Vice Chancellors of Research (VPR/VCR).

## II. PROGRAM DESCRIPTION

#### II.A. TARGET AREA

The State EPSCoR Committee has decided that a major component of the statewide EPSCoR proposal will consist of one competitively selected proposal in the area of Cyber-Enabled Materials, Manufacturing, and Smart Systems that:

- builds upon existing research strengths and leverages State investments in science and technology;
- activates effective collaborations within Louisiana that advance scientific research, promote innovation, and benefit society;
- fosters meaningful interdisciplinary research and collaboration among Louisiana institutions;
- has the greatest potential to produce significant improvements in the State's science and technology enterprise;
- results in a research/education enterprise that is sustainable beyond the period of EPSCoR funding by securing funding from federal, private, and industrial partners/sources; and
- has the greatest potential to become a sustainable national center funded primarily through external sources.

Cyber-Enabled Materials, Manufacturing, and Smart Systems will transform manufacturing systems to "smart" systems by integrating modeling, computations, sensors, and communication with physical systems to improve product performance, reliability, and lifetime, as well as using applied monitoring techniques to prevent downtime and failure. This initiative is expected to yield industrial growth while accelerating the convergence of frontier research in manufacturing science and engineering, materials, and secure cyber-enabled systems.

Proposals should establish strong linkages between post-secondary institutions and the private sector. EPSCoR funds must be expended in Louisiana and cannot be transferred to other locations for these initiatives.

The proposed project must be scientifically meritorious and demonstrate meaningful interdisciplinary collaboration among Louisiana institutions involving multiple research institutions, including a significant role for minority-serving institutions and meaningful linkages to community colleges. Applicants must be able to demonstrate a pre-existing critical mass as evidenced by a successful record of external research awards and peer-reviewed publications. To ensure maximum impact of EPSCoR funds, proposals must present a detailed strategy to generate subsequent, sustained non-EPSCoR funding from federal, State, or private sector sources.

#### II.B. FINANCIAL CONSIDERATIONS

The comprehensive, statewide NSF EPSCoR proposal, if successful, will result in an award to Louisiana in the form of a five-year grant. The BoR, as the award recipient, will act as the fiscal agent in disbursing project funds and will issue subcontracts to the lead institution and other institutions listed in the successful proposal. There is no restriction on the amount requested annually, but the total budget request may not exceed \$20 million. Funding is contingent upon Louisiana receiving an EPSCoR award. For this statewide competition, institutional matching funds are not required.

Indirect costs must be charged by each participating institution at the applicable indirect cost rate(s) negotiated with each institution's respective cognizant negotiating agency.

## **II.C. ELIGIBILITY CONSIDERATIONS**

All public institutions of higher education, as well as accredited independent institutions of higher education that are members of the Louisiana Association of Independent Colleges and Universities, are eligible to submit proposals under this RFP. <u>Individuals listed as PI or Co-PI on a proposal cannot participate in another proposal</u>. Individuals listed as PI and Co-PIs on a proposal must hold a tenured or tenure-track faculty position at the submitting institution. Individuals who are <u>not</u> employed by an eligible institution may serve as consultants on proposals; however, they may not be listed as PIs or Co-PIs. The number of Co-PIs is limited to three (3).

# **II.D. PROJECT ORGANIZATION**

The State EPSCoR Project Director (PD), who is also the BoR's Associate Commissioner for Sponsored Programs Research and Development, will direct and manage the statewide NSF EPSCoR award, and will have programmatic and budget authority as described in the NSF Proposal and Award Policies and Procedures Guide (PAPPG) and any special conditions imposed by NSF. As a component of the statewide EPSCoR program, the recommended project will be under the purview of the BoR.

# II.E RELATIONSHIP TO STATEWIDE EPSCOR PROPOSAL

The recommended project will be incorporated as part of the comprehensive, statewide RII proposal to be submitted to the NSF in July 2019. Considerable effort will have to be made to integrate the recommended project into the full proposal. The lead investigators (PI and Co-PIs) of the recommended proposal must be available to integrate their projects into the comprehensive statewide proposal that the Board of Regents will ultimately submit to the NSF. Please plan accordingly. Failure to adhere to this crucial

requirement will result in the elimination of the project from inclusion in the statewide proposal.

# II.F. TIMETABLE (Dates may change, subject to requirements of FY2020 NSF RII Track-1 Solicitation)

June 29, 2018 Issuance of RFP

October 17, 2018 Notices of Intent due at BoR

November 19, 2018 Last day to answer questions concerning this RFP

December 17, 2018 Proposals due at BoR

Jan – Feb 2019 Proposal review

Mar - June 2019 Successful proposal incorporated into statewide

proposal

July 2019 Statewide proposal due at NSF

# III. PROPOSAL SUBMISSION AND FORMAT REQUIREMENTS

#### III.A. GENERAL REQUIREMENTS

The applicant is responsible for any misunderstandings that occur because of incorrect proposal assembly and electronic submission to the BoR.

#### III.B. NOTICE OF INTENT REQUIRED

Before a proposal will be accepted, a notice of intent (NOI) in portable document format (pdf) must be submitted by the PI no later than the close of business (4:30 p.m.) on **Wednesday**, **October 17, 2018**.

All online submissions must be uploaded as a single PDF document (form provided following this RFP) through the LOGAN system. Notice of Intent submissions are a two-step process. Following PI submission, the NOI is routed to your employing institution for review, approval, and final submission to the Board of Regents office; **the Board does not receive and will not accept the NOI directly from the PI**. Deadlines listed in the RFP are absolute; all approved NOIs must be submitted by the campus and received by the Board on or before the published deadline. The NOI submission system will automatically close at 4:30 p.m. Central on the deadline date.

## III.C. SUBMISSION OF PROPOSAL

The deadline for receipt of <u>proposals</u> on the BoR server is **4:30 p.m. Central on Monday, December 17, 2018**. Failure to meet this deadline will invalidate the submission. The LOGAN proposal submission system is programmed to close at the deadline cited in this RFP. Note that submission deadlines are absolute and that all campus work on the proposal, including final approval and submission to the Board of Regents by the designated campus office, must be completed on or before the deadline date and time.

#### III.D. ELECTRONIC SUBMISSION

The NOI and the proposal **must** be submitted to the Board of Regents by the submitting institution's authorized representative. **Proposals directly submitted to the Board of Regents by individual Pls will not be accepted.** All online submissions must be uploaded as a single PDF document through the LOGAN system.

#### Instructions for PIs:

- 1. Go to URL: https://web.laregents.org/logan/index.pl.
- 2. Login using your LOGAN credentials.
  - a. If you are new user and do not have a LOGAN login, please click on "New user registration" to register.
  - b. If you have logged into LOGAN before and have forgotten your credentials please send an email to support@laregents.org.
- 3. After logging in, click on "EPSCoR Track-1 Proposals" and use the provided online form to select and upload the PDF document.
- 4. If upload is successful, send the proposal to your sponsored programs office by clicking the "Send Proposal to OSP/OSR". A proposal number will be assigned after the proposal is successfully sent to the PI's Office of Sponsored Programs/Research.
- 5. An email confirmation will be sent to the PI with the proposal number.
- 6. The OSP/OSR will review the proposal, and, if approved, send the proposal to the Board of Regents.

#### Instructions for the OSP/OSR:

- 1. Go to URL: <a href="https://web.laregents.org/logan/index.pl">https://web.laregents.org/logan/index.pl</a>.
- 2. Login using your Institutional credentials.
- 3. Select "EPSCoR Track-1 Proposals".
- 4. Follow simple onscreen instructions to submit the proposal to the Board of Regents, EPSCoR office.
- 5. An email will be sent to both the PI and the OSP/OSR to confirm successful submission of the proposal.

If both the PI and the OSP/OSR do not receive confirmation emails within 12 hours, send an email to support@laregents.org with PI name and proposal title.

## III.E. TYPE SIZE AND FORMATTING

The proposal must conform to the following requirements, which are identical to NSF proposal preparation requirements, as noted in NSF 13-1, the NSF Proposal and Award Policies and Procedures Guide (PAPPG):

Use one of the following typefaces identified below:

- Arial11, Courier New, or Palatino Linotype at a font size of 10 points or larger;
- Times New Roman at a font size of 11 points or larger; or
- Computer Modern family of fonts at a font size of 11 points or larger.

A font size of less than 10 points may be used for mathematical formulas or equations, figures, table or diagram captions and when using a Symbol font to insert Greek letters or special characters. Pls are cautioned, however, that the text must still be readable.

No more than six lines of text within a vertical space of one inch.

Margins, in all directions, must be at least an inch.

These requirements apply to all uploaded sections of a proposal, including supplementary documentation.

#### III.F. PROPOSAL ELEMENTS

The proposal must contain the following elements, in the order presented here:

- 1. **Cover Sheet** Use cover sheet provided with this RFP. Do <u>not</u> attach institutional routing sheets or similar items.
- 2. Project Summary (1 page maximum) Provide a clear vision for and description of the proposed RII Track-1 project and its potential impact. Briefly describe the proposed scope and the RII Track-1 project organization, research and education activities, and their integration. Also, briefly describe how the research activities align with the STEM research priorities in the jurisdiction's approved S&T plan. The Project Summary should consist of three sections with clear headings: Overview, Intellectual Merit, and Broader Impacts.

#### 3. Table of Contents

4. **Project Description** – The Project Description, not to exceed thirty-five (35) pages, consecutively numbered, including text as well as visual materials, must include the following sections, each section clearly indicated by using the headings below in bold: Refer to NSF Program Solicitation NSF 18-558 for specific instructions for preparing each section. Please note that any changes to these instructions that are contained in the 2020 Track-1 Program Solicitation (which has not yet been issued by NSF), will take precedence.

- (a) Status and Overview (3 pages maximum)
- (b) Results from Relevant Prior NSF Support (2 pages maximum)
- (c) **Research Program** (22 pages maximum)
- (d) **Education and Workforce Development** (5 pages maximum)
- (e) **Seed Funding and Emerging Areas** (2 pages maximum)
- (f) **Diversity Plan** (2 pages maximum)
- (g) Partnerships and Collaborations (3 pages maximum)
- (h) Communication and Dissemination Plan (2 pages maximum)
- (i) Sustainability Plan (3 pages maximum)
- (j) Management, Evaluation and Assessment Plan (6 pages maximum) (this section <u>must</u> include Budget Table A and B, below:

**Budget Table A:** Summary of Requested NSF Support by Organization. In tabular form, summarize the overall support levels planned for each participating organization (in \$K). For each entry in the Table, include indirect costs. Column totals must equal the total budget requested from NSF for the period shown. Cost sharing support for each organization must also be included in the last column as indicated below.

| Organization  | Year<br>1 (\$K) | Year 2<br>(\$K) | Year 3<br>(\$K) | Year 4<br>(\$K) | Year 5<br>(\$K) | 5- Year<br>TOTAL | % of<br>NSF<br>Total |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|----------------------|
| Lead Organization (Name)  |                 |                 |                 |                 |                 |                  |                      |
| Participating Organization (Name) (repeat for each organization participating in RII Track-1) |                 |                 |                 |                 |                 |                  |                      |
| Total   |                 |                 |                 |                 |                 | \$20M            | 100%                 |

<sup>\*</sup>There is no restriction on the amount requested annually, but the total cannot exceed \$20 million.

**Budget Table B:** Summary of Requested NSF Support by Project Activity. In tabular form as follows, summarize the overall support levels (in \$K) planned for each of the major project activities. Provide separate entries for each research area including salaries and fringe benefits for participants, seed funding, and relevant equipment. For all other entries, include an estimated cost of the implementation of the proposed plans. Support for graduate students should normally be included under research or education, not under the Workforce Development Plan or other sections. Educational activities may be included under the relevant research areas as appropriate when those research and education activities are truly integrated. Include only other educational activities in the Education category. The table must include columns for annual, total, percentage, and cost sharing amounts, as shown below.

| Activity   | Year 1<br>(\$K) | Year 2<br>(\$K) | Year 3<br>(\$K) | Year<br>4 (\$K) | <br>Total<br>(\$K) | % of<br>NSF<br>Total |
|--|-----------------|-----------------|-----------------|-----------------|--------------------|----------------------|
| Research Area 1 (Title) salaries and fringe benefits |                 |                 |                 |                 |                    |                      |
| Research Area 1<br>Equipment                         |                 |                 |                 |                 |                    |                      |
| Research Area 2 (Title) salaries and fringe benefits |                 |                 |                 |                 |                    |                      |
| Research Area 2<br>Equipment                         |                 |                 |                 |                 |                    |                      |
| Research Area 3, (as needed)                         |                 |                 |                 |                 |                    |                      |
| Education and<br>Workforce Development               |                 |                 |                 |                 |                    |                      |
| Seed Funding   |                 |                 |                 |                 |                    |                      |
| Diversity Plan                                       |                 |                 |                 |                 |                    |                      |
| Partnerships and Collaborations                      |                 |                 |                 |                 |                    |                      |
| Communications and Dissemination Plan                |                 |                 |                 |                 |                    |                      |
| Sustainability Plan                                  |                 |                 |                 |                 |                    |                      |
| Management (include all administrative expenses)     |                 |                 |                 |                 |                    |                      |
| Evaluation and<br>Assessment                         |                 |                 |                 |                 |                    |                      |
| Indirect Cost  |                 |                 |                 |                 |                    |                      |
| Other (specify)                                      |                 |                 |                 |                 |                    |                      |
| Total  |                 |                 |                 |                 |                    | 100%                 |

- 5. **References Cited** Pages should be titled "References" at the top. While there is no established page limitation for the references, this section must include bibliographic citations only and must not be used to provide parenthetical information outside of the 35-page Project Description.
- 6. Biographical Sketches Include a biographical sketch for each faculty level participant according to standard NSF guidelines. Include PhD and Post-doc advisors, and all PhD students supervised. Limit: 2 pages for each senior investigator. It is also permitted to include biographical sketches for any named collaborators whose expertise is crucial to the success of the project.
- 7. Budget pages and budget justification Prepare a separate budget page for each year plus a cumulative budget page. A budget justification must be included. Funding to be subcontracted to participating institutions must be listed under G.5, "subcontracts" and a detailed justification of these costs included in the budget justification. Travel must be reimbursed according to Louisiana travel regulations as stated in the Louisiana State Travel Policy and Procedures Manual 49 (PPM-49). Indirect Costs must be charged by each participating institution at the applicable indirect cost rate(s) negotiated with each institution's respective cognizant negotiating agency.
- 8. **Current and Pending Support** List Current and Pending Support for each faculty-level and equivalent investigator.
- 9. Facilities, Equipment, and Other Resources
- 10. Supplementary Documentation
  - a) List of Participants

Provide an alphabetical (by last name) list of all participating senior investigators (faculty level and equivalent), anyone named in the proposal who will receive financial support through the project (including subcontractors, and other key personnel. This list must identify the roles of the participants.

# b) List of Participating Organizations

Provide a list of all organizations that will participate in, contribute to, or directly benefit from the proposed project. This list must identify the roles of the participating organization.

### c) Letters of Collaboration

Include only official letters with specific commitments of resources from participating institutions, organizations anticipated to receive subawards or subcontracts, and organizations that will provide resources to the project. Do <u>not</u> submit letters of support which do not provide specific commitments of resources.

# d) Most recent, approved State S&T Plan

- e) Postdoctoral Researcher Mentoring Plan (maximum of 1 page) and a Data Management Plan (maximum of 2 pages)
- f) List of conflicts

## IV. QUESTIONS ABOUT THIS RFP

Specific questions concerning this RFP and the requirements set forth herein should be directed **in writing** to Ms. Jessica Patton, Federal Programs Administrator, by email to <a href="mailto:jessica.patton@la.gov">jessica.patton@la.gov</a>. Questions will be accepted and answered through **4:30 PM on Monday, November 19, 2018**. A running compilation of all questions asked about this RFP and all answers provided in response to those questions will be periodically posted on the BoR website at <a href="mailto:https://web.laregents.org/">https://web.laregents.org/</a>.

# NOTICE OF INTENT: NSF EPSCoR RII Track-1: Cyber-Enabled Materials, Manufacturing and Smart Systems (page 1 of 2)

| NAME OF PRINCIPAL INVESTIGATOR:                         | NAME OF LEAD ORGANIZATION:          |
|---|-------------------------------------|
| PI DEPARTMENT   | PI PHONE NUMBER and EMAIL ADDRESS   |
| TITLE OF PROPOSED PROJECT:                              |                                     |
| ☐ CHECKED BOX INDICATES THAT PI HAS DISCUSSED THIS PROP | OSAL WITH LEAD INSTITUTION VPR/VCR: |
| LIST PARTICIPATING INSTITUTIONS/CAMPUSES:               |                                     |
| LIST PROJECT DISCIPLINES:                               |                                     |
| PROJECT SYNOPSIS (maximum 250 words):                   |                                     |
| NAMES of OTHER INVESTIGATORS*  Co-PI*                   | INSTITUTION/DEPARTMENT              |
|   |                                     |
| Co-PI*  |                                     |
| Co-PI*  |                                     |

\*Please note the restriction outlined in Section II.C of the RFP, which states that investigators at the PI and Co-PI level responding to this RFP may participate in only one proposal. Investigators may not be listed on multiple Notices of Intent. The number of Co-PIs allowed per proposal is limited to three (3).

# NOTICE OF INTENT NSF EPSCoR RII Track-1: Cyber-Enabled Materials, Manufacturing and Smart Systems (page 2 of 2)

Provide names, titles, mailing addresses, telephone numbers, and e-mail addresses for at least three out-of-state scholars in the specific field of your proposal who are qualified to evaluate your proposal and/or who can recommend other individuals who are qualified to evaluate your proposal. Great care should be taken to identify prospective reviewers who do not have conflicts of interest with the applicant, as might occur with former research collaborators, students, or major professors.

Reviewers cannot 1) have been a Louisiana faculty member during the previous five years; 2) have collaborated on a publication, funded project, or as a paid consultant with the applicant during the past five years; or 3) have supervised the master's thesis, doctoral candidacy, or post-doctoral work of the applicant.

In addition, although the Board cannot guarantee that certain reviewers will not be used, if the applicant believes certain individuals should <u>not</u> be asked to evaluate the proposal, their names, affiliations, and a brief explanation of the potential conflict must be provided. Attach additional pages as necessary to ensure that all required information is in legible form.

| Name/Title (typed) | Mailing Address and Email Address | Telephone # |
|--------------------|-----------------------------------|-------------|
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# COVER SHEET FOR PROPOSAL TO THE BOARD OF REGENTS

| FOR CONSIDERATION BY BOR ORGANIZATION UNITS(S)  Sponsored Programs — EPSCoR                           |                          |                                |                         |              |                                  |                               | (FOR BOR USE ONLY)  BOR PROPOSAL NUMBER |                  |
|---|--------------------------|--------------------------------|-------------------------|--------------|----------------------------------|-------------------------------|---|------------------|
| PROGRAM ANNOUNCEMENT/SOLICITATION NO./CLOSING DATE  Research Infrastructure Improvement - Track 1 RFP |                          |                                |                         |              |                                  |                               |   |                  |
| NAME OF LEAD ORGANIZATION:  ADDRESS OF LEAD ORGANIZATION  |                          |                                |                         |              | in, including zi                 | P CODE:                       |   |                  |
| PI DEPARTMENT PI POSTAL ADDRESS   |                          |                                |                         |              |                                  |                               |   |                  |
| TITLE OF PROPOSED PF  | ROJECT:                  |                                |                         |              |                                  |                               |   |                  |
| REQUESTED<br>AMOUNT, YR 1:<br>\$  | REQUEST<br>AMOUNT,<br>\$ |                                | REQUEST<br>AMOUNT<br>\$ |              | REQUESTED<br>AMOUNT, YR 4:<br>\$ | REQUESTED<br>AMOUNT, YR<br>\$ |   | TOTAL REQUESTED: |
| LIST PARTICIPATING INSTITUTIONS/CAMPUSES:   |                          |                                |                         |              |                                  |                               |   |                  |
| LIST PROJECT DISCIPLI   | NES:                     |                                |                         |              |                                  |                               |   |                  |
| NAMES (TYPED)   |                          | Highest Degre<br>year attained | ee/ Tele                | phone Number | Email Address                    |                               |   |                  |
| PRINCIPAL INVESTIGATOR  |                          |                                |                         |              |                                  |                               |   |                  |
| Co-PI*  |                          |                                |                         |              |                                  |                               |   |                  |
| Co-PI*  |                          |                                |                         |              |                                  |                               |   |                  |
| Co-PI*  |                          |                                |                         |              |                                  |                               |   |                  |

<sup>\*</sup>Please note the restriction outlined in Section II.C of the RFP, which states that investigators at the PI and Co-PI level responding to this RFP may participate in only one proposal. Investigators may not be listed on multiple Notices of Intent. The number of Co-PIs allowed per proposal is limited to three (3).

# **PROJECT SUMMARY**

The Project Summary should include a statement of objectives, methods to be employed, and the significance of the proposed activity to the advancement of knowledge or education. Avoid use of first person to complete this summary. **DO NOT EXCEED ONE PAGE.** 

# **BIOGRAPHICAL SKETCH**

Provide the following information for all faculty level participants on the project. Begin with the PI, followed by the Co-PIs.

# DO NOT EXCEED 2 PAGES PER PERSON.

Please follow the guidelines contained in Part I, Chapter II, Section C.2.f of NSF 13-1, the NSF Proposal and Award Policies and Procedures Guide (PAPPG), which can be accessed at: <a href="http://www.nsf.gov/publications/pub\_summ.jsp?ods\_key=papp">http://www.nsf.gov/publications/pub\_summ.jsp?ods\_key=papp</a>.

# **BUDGET**

| LEAD PRINCIPAL INVESTIGATOR (PI):  | ORGANIZ                    | ORGANIZATION:   |            |                    |  |                        |
|--|----------------------------|-----------------|------------|--------------------|--|------------------------|
| A. SENIOR PERSONNEL:PI/PD, Co-PI's, Faculty, & Senior Associates (List each separately with title, A.& show number in brackets(s)) | NSF Funded person - months |                 |            | Funds<br>Requested | Institutional<br>Matching<br>(not<br>required) | Total Project<br>Costs |
|  | CAL                        | ACAD            | SUMR       |                    |  |                        |
| 1.   |                            |                 |            | 0                  | 0  | 0                      |
| 2.   |                            |                 |            | 0                  | 0  | 0                      |
| 3.   |                            |                 |            | 0                  | 0  | 0                      |
| 4.   |                            |                 |            | 0                  | 0  | 0                      |
|  |                            |                 |            |                    |  |                        |
| 5. 6.( ) OTHERS (LIST INDIVIDUALLY ON  |                            |                 |            | 0                  | 0  | 0                      |
| BUDGET EXPLANATION PG)   |                            |                 |            | 0                  | 0  | 0                      |
| 7.( ) TOTAL SENIOR PERSONNEL (1-6)   |                            |                 |            | 0                  | 0  | 0                      |
| B. OTHER PERSONNEL (SHOW NUMBERS IN BRA  | ACKETS)                    |                 |            | 0                  | 0  | 0                      |
| 1.( ) POST DOCTORAL ASSOCIATES   |                            |                 |            |                    |  |                        |
|  |                            |                 |            | 0                  | 0  | 0                      |
| 2.( ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)   |                            |                 |            | 0                  | 0  | 0                      |
| 3.( ) GRADUATE STUDENTS  | l                          | 1 1             |            | 0                  | 0  | 0                      |
| 4.( ) UNDERGRADUATE STUDENTS   |                            |                 |            | _                  |  |                        |
| 5.( ) SECRETARIAL-CLERICAL   |                            |                 |            | 0                  | 0  | 0                      |
| . ,  |                            |                 |            | 0                  | 0  | 0                      |
| 6.( ) OTHER  |                            |                 |            | 0                  | 0  | 0                      |
| TOTAL SALARIES AND WAGES (A+B)   |                            | -0,             |            | 0                  | 0  | 0                      |
| C. FRINGE BENEFITS (IF CHARGED AS DIR  | ECTCOS                     | IS)             |            | 0                  | 0  | 0                      |
| TOTAL SALARIES, WAGES, AND FRINGE  | BENEFITS                   | (A+B+C)         |            |                    |  |                        |
| D. DEDMANIENT FOUNDMENT (LIGHTEN AN  | 0                          | 0               | 0          |                    |  |                        |
| D. PERMANENT EQUIPMENT (LIST ITEM AN ITEM)   | ND DOLLAI                  | N AMOUNT I      | OK LACIT   |                    |  |                        |
| TOTAL PERMANENT EQUIPMENT  |                            |                 |            | 0                  | 0  | 0                      |
| E. TRAVEL 1. DOMESTIC (  | Incl. Canad                | da & U.S. Pos   | ssesions)  | 0                  | 0  | 0                      |
| 2. FOREIGN   |                            |                 |            | 0                  | 0  | 0                      |
| TOTAL TRAVEL   |                            |                 |            | 0                  | 0  | 0                      |
| F. PARTICIPANT SUPPORT COSTS   |                            |                 |            |                    |  |                        |
| 1. STIPENDS (Itemize levels, types + totals  | on budget j                | ustification pa | age)       | 0                  | 0  | 0                      |
| 2. TRAVEL  |                            | ·               | <b>3</b> / | 0                  | 0  | 0                      |
| 3. SUBSISTENCE   |                            |                 |            | 0                  | 0  | 0                      |
| 4. OTHER (fully explain on justification page) TOTAL PARTICIPANTS (1) TOTAL COS  |                            |                 |            | 0                  | 0  | 0                      |
| TOTAL PARTICIPANTS ( T ) TOTAL COS   | ı                          |                 |            | 0                  | 0  | 0                      |
| G. OTHER DIRECT COSTS  |                            |                 |            |                    |  |                        |
| 1. MATERIALS AND SUPPLIES  |                            |                 |            | 0                  | 0  | 0                      |
| 2. PUBLICATION COSTS/DOCUMENTATION   | 0                          | 0               | 0          |                    |  |                        |
| 3. CONSULTANT SERVICES   | 0                          | 0               | 0          |                    |  |                        |
| 4. COMPUTER (ADP) SERVICE  | 0                          | 0               | 0          |                    |  |                        |
| 5. SUBCONTRACTS  | 0                          | 0               | 0          |                    |  |                        |
| 6. OTHER TOTAL OTHER DIRECT COSTS  |                            |                 |            | 0                  | 0  | 0                      |
| H. TOTAL DIRECT COSTS (A THROUGH G)  |                            |                 |            | 0                  | 0  | 0                      |
| I. INDIRECT COSTS  |                            |                 |            | 0                  | 0  | 0                      |
| J. TOTAL DIRECT AND INDIRECT COSTS (H  | l+I)                       |                 |            | 0                  | 0  | 0                      |

# **CURRENT AND PENDING SUPPORT** (From ALL sources, including the Board of Regents Support Fund)

The following information MUST be provided for each faculty level participant. Use additional sheets as necessary. For more detailed information on requirements for completing this form, please see Part I, Chapter II, Section C.2.h. of NSF-13, the NSF Proposal and Award Policies and Procedures Guide (PAPPG).

NAME OF INVESTIGATOR:

| Status of Support:CurrentPendingSubmission Planned in Near Future    |
|--|
| Project/Proposal Title:  |
| Source of Support:   |
| Award Amount (or Annual Rate): \$ Period Covered:                    |
| Location of Activity:  |
| Person-Months or % of Effort Committed to the Project:Cal YrAcadSumm |
| Status of Support:CurrentPendingSubmission Planned in Near Future    |
| Project/Proposal Title:  |
| Source of Support:   |
| Award Amount (or Annual Rate): \$ Period Covered:                    |
| Location of Activity:  |
| Person-Months or % of Effort Committed to the Project:Cal YrAcadSumm |
| Status of Support:CurrentPendingSubmission Planned in Near Future    |
| Project/Proposal Title:  |
| Source of Support:   |
| Award Amount (or Annual Rate): \$ Period Covered:                    |
| Location of Activity:  |
| Person-Months or % of Effort Committed to the Project:Cal YrAcadSumm |
|  |

# **FACILITIES, EQUIPMENT & OTHER RESOURCES**

Identify the facilities to be used at each performance site listed and, as appropriate, indicate their capacities, pertinent capabilities, relative proximity, and extent of availability to the project. Use "Other" to describe the facilities at any other performance sites listed and at sites for field studies. Use additional pages if necessary. For more detailed information on requirements for completing this form, please see Part I, Chapter II, Section C.2.i. of NSF-13, the NSF Proposal and Award Policies and Procedures Guide (PAPPG).

| Laboratory:    |                  |                   |                 |                  |                  |                   |
|----------------|------------------|-------------------|-----------------|------------------|------------------|-------------------|
| Clinical:      |                  |                   |                 |                  |                  |                   |
| Animal:        |                  |                   |                 |                  |                  |                   |
| Computer:      |                  |                   |                 |                  |                  |                   |
| Office:        |                  |                   |                 |                  |                  |                   |
| Other:         |                  |                   |                 |                  |                  |                   |
| MAJOR EQUIPMEN | NT: List the mos | st important item | s available for | this project and | d, as appropriat | e identifying the |

**MAJOR EQUIPMENT:** List the most important items available for this project and, as appropriate identifying the location and pertinent capabilities of each.

**OTHER RESOURCES:** Provide any information describing the other resources available for the project. Identify support services such as consultant, secretarial, machine shop, and electronics shop, and the extent to which they will be available for the project. Include an explanation of any consortium/contractual arrangements with other organizations.