PROGRAM ANNOUNCEMENT THE ARNOLD AND MABEL BECKMAN FOUNDATION Announces THE 2019 BECKMAN SCHOLARS PROGRAM

Recognizing Outstanding Undergraduate Students in Chemistry and Biological Sciences Research

OVERVIEW

The purpose of the Beckman Scholars Program is to help stimulate, encourage and support research activities by exceptionally talented, full-time undergraduate students who are pursuing their studies at accredited four-year colleges and universities located in the United States of America. These research activities shall be centered in either chemistry, biochemistry, the biological and medical sciences or some interdisciplinary combination of these subjects. Candidates for the Beckman Scholars Award must be full-time students throughout the duration of the award.

The research activities performed by Beckman Scholars shall be conducted under the guidance of a full-time, approved faculty member at the college or university receiving an award. Research activities must be performed part-time (ten hours per week) during one academic year, and full-time over two summers (ten 40-hour weeks each summer) immediately before and after the academic year research experience.

Students will be named as Beckman Scholars in the spring of their freshman through junior years at their university or college. Once selected to be a Beckman Scholar, a student will retain the award for 15 months, as long as he/she continues to excel academically and his/her research work shows satisfactory progress. Beckman Scholar funds provided to any one student may not exceed two summers and one academic year. Beckman Scholar summer funds may extend through the summer following graduation.

INSTITUTIONAL CATEGORIES AND NUMBER OF AWARDS

Beckman Scholar awards are institutional (university or college) awards. Each year, the Arnold and Mabel Beckman Foundation will select a variety of universities and colleges to be invited to submit applications for the Beckman Scholars Program.

An invited university/college will be eligible for one institutional Beckman Scholar Award, which must be used over a three-year period. Each Beckman Scholar Award may fund up to six Beckman Scholars (with funding for student and mentor stipends and travel funds and research supplies) extending over two summers and one academic year. The number of awards allocated to an institution is determined by the institution's Carnegie Classification, with awards distributed as follows:

- Doctoral Universities: Highest Research Activity (R1) will be eligible to receive up to six Beckman Scholar Awards; awards must be awarded over a three-year period with at least ONE award per year awarded and a maximum of three awards in any one of these three years.
- Doctoral Universities: Higher Research Activity (R2) will be eligible to receive up to five Beckman Scholar Awards; awards must be awarded over a three-year period with at least ONE award per year awarded and a maximum of three awards in any one of these three years.
- Doctoral Universities: Moderate Research Activity (R3), Master's Colleges & Universities: Larger Programs (M1), Medium Programs (M2), Small Programs (M3), and Baccalaureate Colleges: Arts & Sciences Focus (B1), Diverse Fields (B2) will be eligible to receive up to four Beckman Scholar Awards; awards must be awarded over a threeyear period with at least ONE award per year awarded and a maximum of two awards in any one of these three years.

The 2019 Beckman Scholar Awardee institutions will select their scholars in early 2019 and begin their first award term in the summer of 2019, followed by a second award term beginning in the summer of 2020, and a third award term in the summer of 2021. Institutions receiving the 2019 Beckman Scholars Award will not be considered for new application invitations until the 2022 program.

2019 Beckman Scholars Program: Award Cycle

Year 1 Scholars - Summer 2019 / Academic Year 2019-20 / Summer 2020

Year 2 Scholars - Summer 2020 / Academic Year 2020-21 / Summer 2021

Year 3 Scholars - Summer 2021 / Academic Year 2021-22 / Summer 2022

INSTITUTIONAL AWARDS TO THE SCHOLARS

Each Beckman Scholar will pursue an independent research project, under the auspices of an approved mentor. The amount of funding for the 2019 Beckman Scholars Program is \$26,000; \$21,000 specifically for the Scholar and \$5,000 for the Scholar's Mentor.

The following provides a breakdown of each Beckman Scholar award:

- Student Stipend \$18,200; per student, distributed as follows:
 - o First summer \$6,800
 - o Academic Year \$4,600
 - Second summer \$6,800
- Scientific Supply and Travel \$2,800; per student, distributed as needed to support current research activities.
- Beckman Symposium:
 - Each Beckman Scholar may be invited to attend the annual Beckman Symposium in each of the two summers of their award term; a formal notification and invitation to be provided.
- Mentor Stipend \$5,000; distributed as needed during the associated Scholar's award term to support the following, but not limited to:
 - Scholar Mentorship Plan (SMP) Mentor to develop & support the SMP,
 - Outlining the Scholar/Mentor relationship,
 - Detailing the collaboration between scholar, mentor & mentor's lab,
 - Defining the expectations of the Beckman Scholar, including but not limited to:
 - Attendance at outside presentations/scientific symposia with the Mentor
 - Pursuit of increased undergraduate journal publication rates by the Scholar & Mentor
 - Outlining the anticipated results of the Scholar's research
 - Mentor Travel to support attendance with Scholar at outside scientific symposia
 - Scientific Supplies related to the Scholar's research
 - Publication Fees for publishing in undergraduate and peer reviewed publications related to Scholar's research

The Arnold and Mabel Beckman Foundation does not provide for overhead or for indirect costs. Institutions may not fund additional or "matching" Beckman Scholars.

BECKMAN SCHOLAR CANDIDATE CRITERIA

"There is no satisfactory substitute for excellence."

- Dr. Arnold O. Beckman

The Beckman Scholars Program is a merit based award. Beckman Scholars will ultimately become prominent leaders in their scientific and professional pursuits. As such, the Foundation has set forth the following requirements of a candidate for the Beckman Scholars Program:

- Undergraduate student: chemistry, biochemistry, the biological and medical sciences or some interdisciplinary combination of these subjects.
- Must be a full-time student throughout duration of award.
- Must maintain good academic standing (minimum 3.5 GPA).

- Must be a citizen or permanent resident of the United States or its possessions.
- Articulate, well spoken.
- Strong writing skills.
- In pursuit of PhD, MD, MD/PhD; or other scientific pursuits.

Demonstrated financial need and issues of race and gender may not be a qualifying criterion in the selection of Beckman Scholars.

ANNUAL BECKMAN SYMPOSIUM

Each year the Arnold and Mabel Beckman Foundation sponsors a symposium that highlights the work of the recipients of the Beckman consortium of programs.

The Annual Beckman Symposium features:

- Scientific and poster presentations by Beckman Young Investigators, Arnold O. Beckman Postdoctoral Fellows, and Beckman Scholars completing their award term.
- Speakers from the Arnold and Mabel Beckman Foundation consortium of programs.
- A series of informal concurrent seminars on topics of special interest by leading scientists from academia, industry and national government laboratories.

The Beckman Scholar attendees are composed of newly appointed Scholars entering into their first summer of research and those Scholars who are finishing their second summer of research, completing their Beckman Scholars Award term. In addition, one Faculty Mentor from each institution <u>may</u> be invited to attend. All second summer Scholars will be asked to exhibit their current research through poster presentation and several speaking slots during the symposium may be available to scholars.

The annual symposium will be a two-evening, three-day event held at the Arnold and Mabel Beckman Center of the National Academies of Sciences and Engineering in Irvine, California. Staff at the Beckman Foundation will coordinate all arrangements and reservations for the symposium. All symposium-related travel and lodging for Beckman Scholars and Faculty Mentors will be paid for by the Arnold and Mabel Beckman Foundation. Specific details will be provided well in advance.

APPLICATION GUIDELINES

- Each institution may submit one application for consideration for an award.
- Application submission requires institutional endorsement of the Arnold and Mabel Beckman Foundation's Award Terms & Conditions (document provided through online application system).
- The application must include endorsements from the chief academic officer and the dean(s) of the College(s), School(s) or Division(s) of the participating academic unit(s), in addition to the Award Terms & Conditions endorsement.
- The applying institution will designate one contact person for communications concerning its application and award.
 Institutional award recipients will be responsible for administering the program as well as submitting financial reports, reports of academic standing, coordinating the submittal of scholar reports, mentor reports, and institutional reports for each term of the institutional award cycle.

NEW INSTITUTION / PAST AWARDEE STATUS

For the 2019 Beckman Scholars Program, Institutions that have not received a BSP Award since 2009 (even if they received a BSP award during 1998-2008) will be considered a New Institution for the purposes of the application and review process. When completing the application, please omit any reference and/or information related to BSP awards received in 1998-2008 (with the exception of Appendix C – Historical Beckman Scholars Report Table; for internal Foundation purposes only, see *Figure 1*). Please see below for award status definitions and associated application components.

- **New Institution:** An institution that has never received a BSP award.
- Historical Awardee (New Institution): An institution with past BSP awards during 1998-2008.
- Past Awardee: An institution with past BSP awards during 2009-2016.
- Historical and Past Awardee: An institution with awards that occurred between 1998-2008 AND 2009-2016.

Figure 1. New Institution / Past Awardee Status

Application Component Award Status	Section 6(a): Institutional Progress Report	Section 6(b): Beckman Scholars Report Table	Section 9 - Appendix C: Historical Beckman Scholars Report Table ¹
New Institutions Never previously awarded a BSP	Do not complete – omit from application submission	Do not complete – omit from application submission	Do not complete – omit from application submission
Historical Awardee (New Institution) Awarded a BSP during 1998-2008	Do not complete – omit from application submission	Do not complete – omit from application submission	Complete
Past Awardee Awarded a BSP during 2009-2016	Complete	Complete	Do not complete – omit from application submission
Historical and Past Awardee Awarded a BSP during 1998-2008 & 2009-2016	Complete for all BSPs awarded in 2009-2016 ONLY	Complete for all BSPs awarded in 2009-2016 ONLY	Complete for all BSPs awarded in 1998-2008 ONLY

¹The information provided in this section is for internal Foundation purposes only, and will not be used in application evaluation.

APPLICATION OVERVIEW

The application should be prepared either individually or jointly by the chair(s) or appropriate institutional representative(s) of the academic units of chemistry, biochemistry, biology, and/or medical sciences. In addition to the endorsement of the Arnold and Mabel Beckman Foundation's Terms & Conditions (document provided), the application submission must include the following sections:

- 1) Application Cover Page, not to exceed one (1) typewritten page (format provided) on institution's letterhead
- 2) Institutional Contacts and Endorsements Page (template provided)
- 3) Institutional Data Sheet (IDS) (template provided)
- 4) Faculty Mentor Summary Data Sheet (FMSDS) (template provided)
- 5) **Proposal**, not to exceed (7) seven typewritten pages (format provided)
- 6) For former Beckman Scholars Program award recipients, awarded in 2009 or later:
 - a) **Institutional Progress Report**. A separate 2-page progress report detailing the merits of the program during the award period (format provided)
 - b) **Beckman Scholars Report Table** (GREEN FORM template provided)
- 7) Appendix A; **Mentor Curriculum Vitae** for each Faculty Mentor listed in the FMSDS (template provided) (two-page max per faculty member)
- 8) Appendix B; Mentor Statements (template provided) (one-page max per faculty member)
- 9) Appendix C; **Historical Beckman Scholars Report Table**, for former Beckman Scholars Program award recipients awarded in 2008 or earlier (BLUE FORM template provided)
- 10) Institutional IRS Determination Letter and Federal Employer Identification Number (FEIN)
- 11) Terms and Conditions

Failure to provide all requested information will result in an automatic denial of the application.

CONFIDENTIALITY

Information and data presented in this application will be held in the strictest confidence by members of the Beckman Scholars Program Advisory Panel and representatives and personnel of the Arnold and Mabel Beckman Foundation.

APPLICATION PREPARATION

The application sections must be in the following order:

1. Application Cover Page

• A one-page introductory statement in which the institution may feature its qualifications for the Beckman Scholars Program award, in consideration of the interests of the Program and Arnold and Mabel Beckman Foundation.

2. Institutional Contacts and Endorsements

- Complete requested information.
- Upload Institutional Endorsement (template provided) from the Chief Institutional Academic Officer, in addition to the Dean(s) from <u>each</u> of the participating academic unit(s).

3. Institutional Data Sheet (Reporting on IDS does not correspond to FMSDS)

- Provide information as requested about the faculty, majors and graduates from each academic unit.
- If awarded, students from chemistry, biochemistry, biology, and medical sciences (broadly interpreted) and/or the participating academic units (per the Institutional Data Sheet) may be considered as Beckman Scholars.
- The academic units listed on the Institutional Data Sheet need not be associated with the faculty (home departments) included on the Faculty Mentor Summary Data Sheet.

4. Faculty Mentor Summary Data Sheet (Reporting on FMSDS does not correspond to IDS)

The number of Faculty Mentors required for application consideration is dependent upon the number of Beckman Scholar awards an institution is eligible for; refer to *Figure 2* for Faculty Mentor requirement specifications.

- Only the faculty listed on the Faculty Mentor Summary Data Sheet will be eligible to serve as approved mentors for the proposed program. If awarded, no additional mentors may be added to list.
- The faculty (home departments) included on the Faculty Mentor Summary Data Sheet need not be associated with the academic units listed on the Institutional Data Sheet.
- Proposed Faculty Mentor pool will be evaluated based on the quality of each Faculty Mentor.
- The Beckman Scholars Program encourages the participation of both junior, as well as more senior academics as Faculty Mentors. The Program's interpretation of the Faculty Mentor Summary Data Sheet as well as the evaluations of curriculum vitae for such faculty members, will take their junior status into consideration.

Figure 2. Required Number of Mentors for 2019 BSP Application

Carnegie Classification	Number of Beckman Scholars Funded If Awarded	Number of Mentors Required for Application Consideration
Doctoral Universities: Highest Research Activity (R1)	6	12 - 15
Doctoral Universities: Higher Research Activity (R2)	5	10 - 12
Doctoral Universities: Moderate Research Activity (R3), Master's Colleges & Universities: Larger Programs (M1), Medium Programs (M2), Small Programs (M3), and Baccalaureate Colleges: Arts & Sciences Focus (B1), Diverse Fields (B2)	4	8 - 10

Provide the following information for each mentor:

(Letters correspond with column headings on Faculty Mentor Summary Data Sheet; list faculty members by alpha/last name)

- a) Home **department** of Faculty Mentor: (1) = biological sciences; (2) = chemistry, biochemistry; (3) = other (specify).
- b) Total number of years in tenure-track appointment.
- In Spring 2018, number of undergraduates mentored in research project work performed in faculty member's lab(s).
- d) In Spring 2018, number of **graduate students** working on research project work performed in faculty member's lab(s).
- e) In Spring 2018, number of **post-doctoral students** working on research project work performed in faculty member's lab(s).
- f) From start of academic year 2012-2013 to the end of academic year 2016-2017 (5 years), number of **undergraduates** mentored in research performed in faculty member's lab(s).
- g) From start of academic year 2012-2013 to the end of academic year 2016-2017 (5 years), estimated average period of **time spent by individual undergraduates** performing research in faculty member's lab(s):
 - (a) = 0 9 months; (b) = 10 18 months; (c) = 19 or more months.
- h) From start of academic year 2012-2013 to the end of academic year 2016-2017 (5 years), total number of peerreviewed journal articles with undergraduate co-authors in research journals, already published or in press. Do not include abstracts.
- i) From start of academic year 2012-2013 to the end of academic year 2016-2017 (5 years), total number of undergraduate co-authors in research publications, already published or in press. Count each student co-author only once, even if they co-author multiple publications. Do not include abstracts.
- j) From start of academic year 2012-2013 to the end of academic year 2016-2017 (5 years), <u>number of External Presentations</u> by mentored undergraduate research students. External Presentations include regional, national and international meetings.
- k) From start of academic year 2012-2013 to the end of academic year 2016-2017 (5 years), <u>number of Internal Presentations</u> by mentored undergraduate research students. Internal Presentations take place at the host institution or at a local conference. Do not include group meetings.
- I) From January 2017 December 2017, **total external support** awarded for faculty member's project(s). Rounded to the nearest \$1,000. For grants that span part of that time, annualize and include the portion relevant to the time period.
- m) From January 2013 December 2017 (5 years), average total annualized external support for faculty member's research project(s). Rounded to the nearest \$1,000. Divide total external support (Jan. 2013-Dec. 2017) figure by 5 to arrive at average.
- n) From January 2017 December 2017, **internal support** provided by home institution for faculty member's research projects (*including* faculty member's summer research salary, undergraduate student stipends, research supplies, special research instrumentation, "competitive" internal grants and <u>excluding</u> faculty member's academic year salary and utilities costs). Rounded to the nearest \$1,000.

5. Proposal (Please identify each section of the proposal. Not to exceed (7) seven typewritten pages.)

Include the following three sections in the program proposal. **The proposal should highlight the uniqueness of the institution's program.** It is not limited to the following sections; however, it must comply with the seven-page maximum.

Scholar Recruitment and Selection (Required Section I):

- Describe the proposed scholar recruitment process:
 - o Announcements, faculty promotion, etc.
- Describe the proposed scholar selection process:
 - o Beckman Scholar candidacy criteria:
 - GPA minimum (3.5) including rationale,
 - research experience,
 - distinguishing characteristics, etc.
 - in pursuit of PhD, MD, MD/PhD; or other scientific pursuits
 - full-time student

Mentor Recruitment and Selection (Required Section II):

- Describe the mentor recruitment process:
 - o Institutional, department promotion, etc.
- Describe the mentor selection process:
 - List the qualifications of a mentor
 - Selection of the mentors
 - Describe any training provided to the mentors

Institutional Support (Required Section III):

- Institution's current commitment to quality undergraduate research (level of undergraduate research activity, institutional support of research operations and quality of research facilities).
- Description of a sustainability plan, unique to the institution's research climate, for maintaining "Beckman-like" excellence in undergraduate research beyond the Beckman Scholars Program that includes:
 - Building on the Program proposed herein, a framework for nurturing future undergraduate researchers in chemistry, biochemistry, the biological and medical sciences, or some interdisciplinary combination of these subjects.
- If awarded:
 - Will the institution provide any additional financial support during the program, if so please describe.
 (Arnold and Mabel Beckman Foundation does not allow institutions to fund "matching scholars.")
 - O How will the institution's Beckman Scholars Program differentiate from other institutional programs, and how will its success be measured?

If additional information is added to the program proposal, beyond the preceding three section requirement, it must comply with the seven-page maximum.

6. <u>Previous Award Reporting</u> (For former Beckman Scholars Program award recipients, <u>awarded in 2009 or later.</u>)

- a. Institutional Progress Report (2-page max)
 - Summary of BSP implementation
 - Success of the BSP (identify the metrics used for measuring success)
 - How the BSP benefitted the following:
 - o Institution's undergraduate programs
 - Students
 - o Mentors
 - If Beckman Scholar funds were returned, provide a detailed explanation.

b. Beckman Scholars Report Tables (GREEN and BLUE FORMS)

 Provide the requested information for each Beckman Scholar who was named under an institutional BSP award. (see chart)

If Institution has had Beckman Scholars	Submit the following scholar reports table(s):	In section(s)
named under a BSP award in 2009 or later	GREEN FORM	6(b)
named under a BSP award in 2008 or earlier	BLUE FORM	9 - Appendix C
named under BSP awards in both 2009 or later and 2008 or earlier	GREEN and BLUE FORMS	6(b) and 9 - Appendix C

7. Appendix A - Mentor Curriculum Vitae

- CV for each Faculty Mentor identified in the Faculty Mentor Summary Data Sheet (FMSDS) (two-page max).
- Institutions are required to submit an appropriate number of Faculty Mentors for application consideration, as outlined in Section 4. Figure 2.
- Only faculty listed on the FMSDS and included in the appendices will be eligible as approved Mentors.
- Alphabetize by Mentor last name.

Each Faculty Mentor identified in the Faculty Mentor Summary Data Sheet must include a Mentor CV, which contains the following information: (Letters correspond with sections of Mentor Curriculum Vitae template provided.)

Name and Contact Information

- A. Education / Training
- B. Professional Experience
- C. Honors and Awards
- D. Select Publications (Include <u>up to ten</u> most recent publications; underline undergraduate co-authors in publication list.)

Each Faculty Mentor Curriculum Vitae may NOT exceed two-pages.

8. Appendix B - Mentor Statements

- To be completed by each Faculty Mentor identified in the Faculty Mentor Summary Data Sheet.
- Each Mentor's Mentor Statement (template provided) should be completed on its own page, not to exceed one page, and written in first person voice.
- Alphabetize by Mentor last name (to match the order of Appendix A).
- Upload all statements as one all-inclusive .pdf.

Mentor Statement: In first person voice, briefly describe your proposed Scholar Mentorship Plan (SMP). The proposed SMP should be reflective of how the Scholar will be mentored, not the nature of the research that is to be performed. Please include the following information:

- Proposed role for the Scholar as an undergraduate researcher in the Mentor's lab.
- Frequency and nature of the planned interactions between the Scholar and the Mentor.
- Specific plans the Mentor will employ to prepare the Scholar for graduate level research and future leadership roles in scientific research and innovation.
- Number and names of undergraduates participating in active laboratory research in the faculty member's current research activities.
- Total number of undergraduate research students (UGRS) the faculty member has mentored to date. Past Beckman Scholars Program institutions: Of the total UGRS, how many were Beckman Scholars?

9. Appendix C - Historical Beckman Scholars Report Table (BLUE FORM)

- Provide the requested information for each Beckman Scholar who was named under an institutional BSP award from 2008 or earlier.
- The information provided in this section is for <u>internal</u> Foundation purposes only, and will not be considered in application evaluation.

10. Institutional IRS Determination Letter and Federal Employer Identification Number (FEIN)

 Institution must hold, or possess equivalent to, 501(c)3 status and provide both an IRS determination letter and Federal Employer Identification Number (FEIN).

11. Terms and Conditions

- Download and review the Terms and Conditions .pdf.
- Acknowledge concurrence with the Terms by signing and dating the first page.
- Upload all pages of the document as one all-inclusive .pdf.

PROPOSAL REVIEW CRITERIA

"There is no satisfactory substitute for excellence."

- Dr. Arnold O. Beckman

The Foundation has the assistance and counsel of a group of distinguished faculty who serve on the Beckman Scholars Advisory Panel. Each Advisory Panel member is tasked with reviewing the applications for a merit-based program with the below criteria:

- Institution's current commitment to quality undergraduate research in chemistry, biochemistry, and biological and
 medical sciences, or some interdisciplinary combination of these subjects (level of undergraduate research activity,
 external funding for research, institutional support of research operations and quality of research facilities), and
 continued quality of institution's graduated baccalaureate science majors (graduate and professional programs
 attended, awards received, publication records).
- Suitability of faculty as mentors for the Beckman Scholars (educational background, undergraduate mentor
 experience, external funding, refereed publications, awards and honors, scholarly accomplishments) and their
 mentoring philosophy as stated in Faculty Mentor's Mentor Statement.
- 3. Role of Beckman Scholar as focal point of research activities (role as scientific collaborator vs. support technician, undergraduate presentations at regional and national meetings, undergraduate co-authors of refereed publications).
- 4. Environment and interactions of Beckman Scholars with existing undergraduate educational and research activities and mentorship (plan for nurturing scholars, enrichment programs, advising and career planning, training of Scholars as potential scientific leaders).
- 5. Quality and distinctiveness of proposed Beckman Scholars Program (evaluation criteria, scholar selection process, mentor selection process, institutional commitment to program). The Beckman Scholars Program is a merit based program; issues of gender, race and financial need should not be considered contributing factors in the application process.
- 6. Sustainability of Beckman Scholars Program (measures described by institution include a long-term plan to sustain same level of undergrad research at the conclusion of BSP award cycle).

IMPORTANT: Question #7 is only for Institutions who had a Beckman Scholars Program in 2009 or later.

7. Implementation of previous Beckman Scholars Program (program success, program benefits to students and institution, accomplishments of Beckman Scholars).

SELECTION

The Beckman Scholars Advisory Panel will review and evaluate the applications and recommend approximately ten merit-based programs for funding (approximately 60 Scholars). The Board of Directors of the Arnold and Mabel Beckman Foundation will make the final determination on institutional awards. It is anticipated that private and public research, doctorate, master's and baccalaureate universities and colleges will all be represented in the final award list.

Because of the excessive administrative requirements involved, the Arnold and Mabel Beckman Foundation provides limited written feedback on unsuccessful applications, but is unable to provide additional critical commentary via telephone, meeting or email.

APPLICATION SUBMISSION

Online access: https://1beckmanfoundationgrants.communityforce.com/Login.aspx

Submission deadline: June 15, 2018 at 5 p.m. PDT / 8 p.m. EDT.

Incomplete applications or applications received after this time will not be considered.