

**HHMI Undergraduate Science Education - Universities  
2010 Competition System  
Core Proposal Guidelines**

*These guidelines should serve as a reference in writing the proposal.*

For questions related to the submission process, please contact HHMI at [ugradcomp@hhmi.org](mailto:ugradcomp@hhmi.org) or 301-215-8895. For technical assistance, please contact [websupport@hhmi.org](mailto:websupport@hhmi.org) or 301-215-8580.

### OVERVIEW

The Howard Hughes Medical Institute invites proposals for the 2010 Undergraduate Science Education grants competition for research universities. HHMI grants support a range of activities that engage students in research, create courses that convey the excitement of contemporary science, develop current and future faculty members, and broaden access to science careers through outreach activities that extend to elementary, high school, and community college faculty and students. Through this competition, HHMI seeks to support the very best initiatives in undergraduate science education and develop innovative ways to energize and reform science education at research universities.

The competition is open by invitation to 197 institutions ([www.hhmi.org/universities](http://www.hhmi.org/universities)) that serve undergraduates and were classified in 2005 by the Carnegie Foundation for the Advancement of Teaching as research universities (very high- and high-research activity). These institutions provide an environment in which research-active faculty and students are engaged in excellent, peer-reviewed science. Successful applicants should effectively engage research-active faculty in science education activities.

The **core grant** will provide funding in four components: student research, faculty development, curriculum development, and outreach and transitions. We expect to fund core grants for up to \$2.2 million over four years.

In this competition, HHMI will consider additional support for **experiments in undergraduate science education**. We seek to encourage science faculty to try innovative ideas in science education. Because many of these experiments may be considered risky, the application and review of the Experiments will be separate from the core grant proposal. Grants for Experiments are expected to be for up to \$600,000 over four years in addition to the core grant.

#### **Program Objectives**

The 2010 Undergraduate Science Education grants will support initiatives that strengthen science education by a variety of strategies to:

- integrate research and teaching in undergraduate education;
- engage students in inquiry-based science;
- prepare undergraduates, including women and members of minority groups underrepresented in the sciences, for graduate studies and careers in biomedical research, medicine, and science education;
- promote science literacy among all students;
- support new and high-quality approaches and techniques in science teaching;
- enhance precollege education by connecting university science departments with education majors, preK-12 teachers, students and schools;
- provide substantive teaching and mentoring experiences to prepare postdoctoral fellows and graduate students for future roles as educators;

- provide opportunities and resources for faculty members to improve their teaching skills, course materials, and mentoring skills;
- encourage collaborations and partnerships that expand opportunities and share resources, including partnerships between the applicant institution and other institutions that serve important constituencies;
- disseminate successful science education approaches and tools.

### **Proposal Evaluation Criteria**

A panel of distinguished scientists and educators will review the proposals. Panel members will be looking for evidence that programs offer innovative strategies and build on proven success. The principal evaluation criteria are:

#### *Proposed Activities*

- the degree to which the proposal addresses one or more of the initiative's objectives;
- the likelihood that the proposed activities will meet the applicant's stated objectives;
- the commitment of the institution to the proposed goals and activities;
- the degree to which the proposed program will enable the applicant to enhance or expand its ongoing activities or to undertake new initiatives;
- the relationship of the proposed activities to initiatives already under way at the applicant institution supported either by a previous HHMI award or other external funding.

#### *Budget and Administration*

- the effectiveness of the plan for management and administration of the program, including distribution of grant funds;
- the appropriateness of the budget to activities specified in the proposal;
- evidence that the grant will enable new or expanded activities and not simply be budget-relieving for the institution.

#### *Long-Term Impact*

- the effective assessment of previous HHMI-funded activities or other activities related to the proposal's goals;
- a well developed outcomes-based plan to assess the proposed activities;
- a strategy for broad dissemination of effective practices and products resulting from the grant to extend successes achieved locally to the larger science education community;
- compelling approaches for effecting long-term institutional change in undergraduate science education;
- adequate support by the applicant's administration;
- substantial involvement of science faculty, particularly research-active faculty, in proposed program activities;
- evidence that responsibilities for program development and administration are distributed among appropriate members of the faculty, administration, and staff.

## GENERAL ADVICE

- **Writing the Proposal:** Faculty members in the relevant science departments should take the lead in developing and writing the proposal. Where appropriate, the grantee institution should establish an advisory committee to assist the program director in the allocation of funds, in selecting students for research opportunities, in selecting the faculty members for professional development support, and in selecting the laboratories to be equipped or renovated. The composition, responsibilities, and authority of this committee may be described with specific names or positions, or with types of individuals. Consider the involvement of relevant program participants, such as teachers, as appropriate.
- **Research Active Faculty:** The proposal should demonstrate broad and significant involvement of research-active science faculty in all aspects of the proposed initiatives. The responsibilities for program development and grant administration should be shared in a sensible fashion.
- **Institutional Context and Commitment:** The proposal should reflect the strengths and needs of the applicant institution, including how the institution views its educational mission, and what science programs it currently offers. Applicants may want to include information about the science faculty, recent activities aimed at strengthening undergraduate science education, and any distinctive elements of the institution's overall science program. Include information on institutional commitment to proposed activities. Include plans for continuing/institutionalizing program activities after HHMI funds have been expended.
- **New vs. Continuing Programs or Activities:** All proposals, and particularly those from currently funded HHMI grantees, should clearly distinguish between new and continuing programs or activities. Discuss relevant program activities for which HHMI support is not being sought, particularly if this information will provide a better understanding of the proposed program.
- **Program Component Themes:** An over-arching theme can provide an effective unifying context for proposed activities. It is not necessary to request support in every program component area. Consistency with the institution's prior accomplishments and assessment of current needs should outweigh the desire to request support in each area.
- **Diversity:** HHMI is committed to increasing diversity in undergraduate science education and encourages applicants to include ways to increase diversity in all of the program components.
- **Collaborations:** Collaborations among applicant institutions or among applicant and non-applicant institutions can be effective ways to advance program objectives (e.g., regional meetings). As with activities proposed by an individual institution, collaborative activities should be proposed within the context of broad faculty and institutional involvement and continuation of the collaborations beyond the grant. If two or more applicant institutions are proposing to collaborate, the collaborative activities are to be specified in each institution's proposal and not through submission of a joint proposal. Thus if only one of the proposals is funded, the grantee institution may choose to continue the collaborative activities under the HHMI grant. In addition, if proposed program activities involve collaboration with other institutions, the proposal should include letters that specify the extent to which the collaborating institutions are willing and able to participate.
- **Some Relevant Web Resources**
  - The Program Announcement, Grant Profiles, and other information pertaining to the 2010 competition are at [www.hhmi.org/universities](http://www.hhmi.org/universities). The summaries of past and current grants may serve as examples of approved program activities but applicants should propose strategies that are best for their institution and consistent with program areas supported by this competition. See the Program Announcement and Proposal Narrative below for program areas.
  - National Research Council report *Bio2010: Transforming Undergraduate Education for Future Research Biologists* ([www.nap.edu](http://www.nap.edu)).

- The National Academies *Summer Institute* at the University of Wisconsin, Madison ([www.academiessummerinstitute.org](http://www.academiessummerinstitute.org)).
- University of Wisconsin, Madison guide *Entering Mentoring: A Seminar to Train a New Generation of Scientist* ([www.hhmi.org/resources/labmanagement/downloads/entering\\_mentoring.pdf](http://www.hhmi.org/resources/labmanagement/downloads/entering_mentoring.pdf)).
- The American Society for Cell Biology's online, peer-reviewed *CBE Life Sciences Education* ([www.lifescied.org](http://www.lifescied.org)).
- HHMI Survey of Undergraduate Research Experiences (SURE) and Classroom Undergraduate Research Experience (CURE) (<http://www.grinnell.edu/academic/psychology/faculty/dl/sure&cure/>).

## **PROPOSAL GUIDELINES**

### **Home Page**

You should have received an email with your ID and password. Please use this information to access the home page. From the Home Page, click on the link "Undergraduate Science Education Program 2010 – Core Proposal." Ignore the link to "Applicant - Determine Eligibility or Start a New Application." These are links to other HHMI programs that share the competition system.

### **Contact Info**

Enter all required fields for your contact information. Some of the contact information will have already been entered and cannot be changed (e.g., name and email address) because this information was provided to us directly by your institution when they indicated the intent to apply. Please note that the contact person is the person responsible for completing the proposal online and is not necessarily the program director.

### **Executive Summary**

In this text field, using no more than 4,000 characters, enter a summary of the proposal that states its most significant elements. To the extent possible, the executive summary should correspond to the order of the component summaries and proposal narrative.

Note that special character formatting (e.g., superscripts, subscripts, Greek Letters) is not supported in text boxes. Spell out all symbols as necessary (e.g., alpha, beta, gamma) and place superscripts or subscripts in brackets.

### **Component Summary**

For each program component, expand on the executive summary, using no more than 3,500 characters per field. Briefly describe each component for which funding is requested. It is not necessary to request funding in every component. In cases where no funding is requested, select the N/A box. For the areas of program administration, assessment, or dissemination, you are required to describe in the respective text fields how such proposal activities will be administered, assessed, and disseminated even if you are not requesting funding from HHMI in any of these three program areas.

Note that special character formatting (e.g., superscripts, subscripts, Greek Letters) is not supported in text boxes. Spell out all symbols as necessary (e.g., alpha, beta, gamma) and place superscripts or subscripts in brackets.

### **Previous Funding Outcomes**

Complete and download the “Previous Funding” template, even if your institution has not received an HHMI Undergraduate Science Education grant. The purpose of this section is for recent HHMI grantees to provide a summary of the outcomes from their HHMI grants. In addition to the data reported in this section, all applicants are encouraged to include in the proposal narrative a discussion of how the outcomes from previous projects—funded by HHMI or by other external sources—helped to inform the development of the present proposal.

Based on your institution’s previous HHMI funding status, complete the template following the directions below and download the entire document as part of the application.

- **Institutions that have NOT received a previous HHMI undergraduate science education grant:** Mark the checkbox indicating that your institution has not received a previous HHMI grant and leave the rest of the form blank. Save the form and download the document in the previous funding outcomes section of your application.
- **Institutions that have received previous HHMI undergraduate science education grants ONLY BEFORE 1998:** Specify the grant periods in which your institution has received HHMI grant support by marking the appropriate checkboxes on the form. Since your institution has not received HHMI grant support after 1998, leave the rest of the form blank. Save the form and download the document in the previous funding outcomes section of your application.
- **Institutions that have received previous HHMI undergraduate science education grants SINCE 1998:** Specify the grant periods in which your institution has received HHMI grant support by marking the appropriate checkboxes on the form. Since your institution has received HHMI grant support since 1998, complete the remainder of the form by program component. For each program component, indicate the period of time (beginning and ending years) of HHMI funding on which you are reporting, and the total amount of HHMI grant funds spent on this component during this time. If your institution had discontinuous HHMI funding since 1998 (e.g., received HHMI grants in 1998-2002 and 2006-2010), indicate both starting years and both ending years. Report data in each of the program components by filling in the tables. Use the box below the table to provide an explanation of the data in the tables and include any other relevant outcomes that are not captured in the tables. Use Times New Roman 11-point font and only the space provided on this page. If your HHMI grant did not support a specific program component area, mark the checkbox indicating that there was no HHMI funding for the relevant program component. Additional instructions for completing the Previous Funding Outcomes tables are below.

**Previous Funding Outcomes Tables**

**Student Research**

**Note.** For the purpose of this table, underrepresented minority students and faculty are defined as individuals belonging to a particular ethnic or racial group that has been determined by the applicant institution to be underrepresented in the fields of science, technology, engineering, and mathematics. The applicant institution can use the Student Research Outcomes textbox to provide further explanations of the data as necessary.

All undergraduate students supported	Indicate the number of undergraduate students who were supported with HHMI grant funds during the specified funding period. Also provide data on the number of women and underrepresented minority (URM) students.
Students supported who graduated with baccalaureate degrees in a STEM major	Indicate the number of undergraduate students who were supported with HHMI grant funds during the specified funding period AND who graduated with baccalaureate degrees in a science, technology, engineering, and mathematics field. Also provide data on the number of women and underrepresented minority (URM) students.
Students supported who matriculated to Masters degree programs in a STEM field	Indicate the number of undergraduate students who were supported with HHMI grant funds during the specified funding period AND who matriculated into Masters degree programs in a science, technology, engineering, and mathematics field. Students who matriculated to a Masters program and then to a doctoral program should be counted ONLY in the doctoral program. Also provide data on the number of women and underrepresented minority (URM) students.
Students supported who matriculated to doctoral programs in a STEM field	Indicate the number of undergraduate students who were supported with HHMI grant funds during the specified funding period AND who matriculated into doctoral programs in a science, technology, engineering, and mathematics field. Also provide data on the number of women and underrepresented minority (URM) students.
Students supported who matriculated to MD programs (not including MD-PhD)	Indicate the number of undergraduate students who were supported with HHMI grant funds during the specified funding period AND who matriculated into medical programs. Do not include students matriculating to M.D.-Ph.D. programs. Also provide data on the number of women and underrepresented minority (URM) students.
Students supported who matriculated to MD-PhD programs	Indicate the number of undergraduate students who were supported with HHMI grant funds during the specified funding period AND who matriculated into combined M.D.-Ph.D. degree programs. Do not include students matriculating to M.D.-only programs. Students who

	matriculated into M.D. and Ph.D. programs separately should counted ONLY in the last program of matriculation. Also provide data on the number of women and underrepresented minority (URM) students.
Students supported who matriculated to non-STEM doctoral or other professional degrees	Indicate the number of undergraduate students who were supported with HHMI grant funds during the specified funding period AND who matriculated into doctoral programs that were NOT in a science, technology, engineering, and mathematics field or who matriculated into other professional degree programs (e.g., law, business, veterinary medicine, dentistry). Also provide data on the number of women and underrepresented minority (URM) students.
University faculty who mentored supported students	Indicate the number of university faculty members who have mentored undergraduate students who were supported with HHMI grant funds during the specified funding period. If a faculty member mentored two students during one year or mentored students in more than one year, the faculty member should only be counted once. Also provide data on the number of women and underrepresented minority (URM) faculty.
Student Research Outcomes Textbox	As necessary, provide a brief explanation of the outcomes in the table on Student Research. You can use this space to explain your outcomes data (e.g., why some measurements were or were not captured) and include any other relevant outcomes data that are not captured in the table (e.g., pre-post data, comparison groups, and other useful outcome measures). Use Times New Roman 11-point font and only the space provided on this page.
<b>Faculty Development</b>	
<b>Note.</b> For the purpose of this table, underrepresented minorities are defined as individuals belonging to a particular ethnic or racial group that has been determined by the applicant institution to be underrepresented in the fields of science, technology, engineering, and mathematics. The applicant institution can use the Faculty Development Outcomes textbox to provide further explanations of the data as necessary.	
All new faculty positions supported	Indicate the number of faculty positions hired with HHMI grant funds during the specified funding period. Also provide data on the number of women and underrepresented minority (URM) faculty.
New faculty supported who are currently in tenure-track positions	Indicate the number of faculty positions hired with HHMI grant funds during the specified funding period AND who are now in tenure-track positions at universities or colleges. Also provide data on the number of women and underrepresented minority (URM) faculty.

Teaching postdoctoral positions supported	Indicate the number of teaching postdoctoral positions supported by HHMI grant funds during the specified funding period. Also provide data on the number of women and underrepresented minority (URM) postdocs.
Teaching postdocs supported who are now in tenure-track positions	Indicate the number of teaching postdoctoral positions supported by HHMI grant funds during the specified funding period AND who are now in tenure-track positions at universities or colleges. Also provide data on the number of women and underrepresented minority (URM) postdocs.
Graduate student teaching positions supported	Indicate the number of graduate student teaching positions supported by HHMI grant funds during the specified funding period. Also provide data on the number of women and underrepresented minority (URM) graduate students.
Graduate student teaching positions supported who are now in tenure-track positions	Indicate the number of graduate student teaching positions supported by HHMI grant funds during the specified funding period AND who are now in tenure-track positions at universities or colleges. Also provide data on the number of women and underrepresented minority (URM) graduate students.
Faculty who participated in faculty development efforts	Indicate the number of faculty who actively participated in faculty development activities that were funded with HHMI grant funds during the specified period. If a faculty member was involved in two different faculty development activities, the faculty member should only be counted once. It is not necessary for the faculty member to have been directly paid by the HHMI grant to be included in the table, as long as the faculty development activities were funded by the grant. Also provide data on the number of women and underrepresented minority (URM) faculty.
Faculty Development Outcomes Textbox	As necessary, provide a brief explanation of the outcomes in the table on Faculty Development. You can use this space to explain your outcomes data (e.g., why some measurements were or were not captured) and include any other relevant outcomes data that are not captured in the table (e.g., pre-post data, comparison groups, and other useful outcome measures). Use Times New Roman 11-point font and only the space provided on this page.
<b>Curriculum Development</b>	
All grant-supported courses and labs	Indicate the number of courses and labs revised or developed using HHMI grant funds during the specified funding period.
Grant-supported courses and labs still offered at your institution	Indicate the number of courses and labs revised or developed using HHMI grant funds during the specified funding period AND that are still being offered at your

	institution. Courses that have been significantly modified (e.g., course number or title change) after the HHMI grant funding period should not be counted.
Students enrolled in grant-supported courses or labs during funding period	Indicate the number of undergraduate students who enrolled in courses or labs that were revised or developed using HHMI grant funds during the specified funding period. If a student enrolled in a course and a lab, which were both developed through grant support, the student should be counted twice.
Students enrolled in grant-supported courses or labs after funding period	Indicate the number of undergraduate students who enrolled in courses or labs that were revised or developed using HHMI grant funds during the specified funding period AND that are still being offered at your institution. If a student enrolled in a course and a lab, which were both developed through grant support, the student should be counted twice.
Faculty who participated in grant-related curriculum development efforts	Indicate the number of faculty who actively participated in revising or developing courses using HHMI grant funds during the specified period. If a faculty member was involved in the development of two different courses, the faculty member should only be counted once. It is not necessary for the faculty member to have been directly paid by the HHMI grant to be included in the table, as long as the curriculum development activities were funded by the HHMI grant.
Curriculum Development Outcomes Textbox	As necessary, provide a brief explanation of the outcomes in the table on Curriculum Development. You can use this space to explain your outcomes data (e.g., why some measurements were or were not captured) and include any other relevant outcomes data that are not captured in the table (e.g., pre-post data, comparison groups, and other useful outcome measures). Use Times New Roman 11-point font and only the space provided on this page.
<b>Outreach and Transitions</b>	
<b>Note.</b> For the purpose of this table, underrepresented minorities are defined as individuals belonging to a particular ethnic or racial group that has been determined by the applicant institution to be underrepresented in the fields of science, technology, engineering, and mathematics. The applicant institution can use the Outreach and Transitions Outcomes textbox to provide further explanations of the data as necessary.	
PreK-12 students who participated in HHMI-funded outreach/transitions activities	Indicate the number of preK-12 students who were participants in outreach and/or transitions activities supported by HHMI grant funds during the specified funding period. Also provide the number of women and underrepresented minority (URM) students.
PreK-12 teachers who participated in	Indicate the number of preK-12 teachers who were

HHMI-funded outreach/transitions activities	participants in outreach and/or transitions activities supported by HHMI grant funds during the specified funding period. Also provide the number of women and underrepresented minority (URM) teachers.
Undergraduates involved in HHMI-funded outreach/transitions activities	Indicate the number of undergraduate students who were involved in outreach and/or transitions activities supported by HHMI grant funds during the specified funding period. Also provide the number of women and underrepresented minority (URM) students.
Graduate students involved in HHMI-funded outreach/transitions activities	Indicate the number of graduate students who were involved in outreach and/or transitions activities supported by HHMI grant funds during the specified funding period. Also provide the number of women and underrepresented minority (URM) students.
Postdoctoral fellows involved in HHMI-funded outreach/transitions activities	Indicate the number of postdoctoral fellows who were involved in outreach and/or transitions activities supported by HHMI grant funds during the specified funding period. Also provide the number of women and underrepresented minority (URM) postdoctoral fellows.
Faculty involved in HHMI-funded outreach/transitions activities	Indicate the number of university faculty who were involved in outreach and/or transitions activities supported by HHMI grant funds during the specified funding period. Also provide the number of women and underrepresented minority (URM) faculty.
High school students supported who matriculated to college	Indicate the number of high school students who were supported with HHMI grant funds during the specified funding period AND who matriculated to college. Also provide the number of women and underrepresented minority (URM) high school students.
Community college students supported who matriculated to 4-year college/univ	Indicate the number of community college students who were supported with HHMI grant funds during the specified funding period AND who matriculated to a 4-year college or university. Also provide the number of women and underrepresented minority (URM) community college students.
Outreach and Transitions Outcomes Textbox	As necessary, provide a brief explanation of the outcomes in the table on Outreach and Transitions. You can use this space to explain your outcomes data (e.g., why some measurements were or were not captured) and include any other relevant outcomes data that are not captured in the table (e.g., pre-post data, comparison groups, and other useful outcome measures). Use Times New Roman 11-point font and only the space provided on this page.

## **Proposal Narrative**

### **Discussion of Previous Funding Outcomes**

The proposal narrative should include a discussion of recent outcomes from previous efforts in undergraduate science education at your institution, especially if you were supported by previous grants from HHMI. In incorporating a discussion of your previous funding outcomes in your proposal narrative, it may be helpful to include the following:

- an assessment of the outcomes and impact of previous support;
- a discussion of how the proposed initiatives relate to the outcomes arising from previous support;
- a discussion of how previous support led to the leveraging of additional funds.

If funding for activities that have been previously supported by HHMI is not being requested in the present proposal, it is helpful to discuss why these activities are not proposed for further HHMI funding.

Applicants are encouraged to develop their own approaches and to be creative in meeting the objectives of this competition on the basis of their institutional mission and needs. The following examples of strategies are meant to illustrate, and not prescribe, the kinds of approaches applicants may wish to consider, as organized by program components.

### **Student Research**

- Students should be provided with engaging, scientifically substantive projects tailored to their abilities that communicate the excitement of scientific discovery early in their college careers. Student research experiences may be expanded through collaborations with other institutions, including other research universities, private entities, or government laboratories. Research experiences mentored by HHMI international research scholars may be supported through this grant. Proposals should include a description of what will happen to the collaboration when the grant ends.
- Student laboratory experiences should be of a sufficient length to produce meaningful results (e.g., a full summer, a combined summer and academic year, or multiple years).
- Participants need not be limited to science majors. Research experiences may be an effective mechanism to broaden access to science for non-science majors.
- Activities that regularly bring together participating students and faculty—such as research presentations, seminars, mentoring, academic support, career advising—can be effective ways to ensure that a research program is more than the sum of its parts.
- Describe the current research environment, including the types of laboratory projects open to students and the current level of student involvement in research; identify participating faculty mentors and other sources of support.
- The stipend paid to students, especially those with summer earnings requirements for financial aid, should be competitive with earnings from other jobs.
- A detailed plan should be provided on how students will be selected for research experiences and, teamed with researchers. Student research programs should also gauge the impact on research experiences to their undergraduate researchers. It may be helpful for programs to use online surveys to assess student experiences, such as the HHMI Survey of Undergraduate Research Experiences (SURE).
- Activities that facilitate the culture of research, such as local symposia or attendance at national meetings, can strengthen the undergraduate laboratory research experience.
- Postdoctoral fellows and graduate students may be involved in activities under this program area to assist in their training as future faculty members.
- Requests may include support for the program director's summer salary or up to that amount to support the program director's summer research program. HHMI funds

may also be used to support individuals who assume significant leadership roles in the program, but may not be used to pay faculty to supervise students in research projects.

### Faculty Development

- Requests for new faculty appointments should be for tenure-track positions. Provide a clear rationale for any new faculty positions as they relate to the objectives of the program. Include a discussion of the anticipated impact(s) of the appointment on undergraduate science education, as well as specific plans for continuing the position after the initial grant period. State clearly the contribution of the applicant institution to the new appointment. Provide evidence that new faculty will be given adequate time to develop their teaching and research programs. Describe the strategies—including salaries, start-up, and infrastructure—that will be used to help ensure a successful search.
- Current faculty development should be well-articulated with other proposal areas. Activities that permit current faculty to enhance their research and teaching skills are appropriate. Activities that broaden faculty experiences, such as cross-disciplinary efforts and mentoring of junior faculty by senior faculty, can be important.
- HHMI funds may be used to support the participation of faculty members in intensive workshops that help faculty members develop and deliver course elements or curricula that actively engage students in learning science. Applicants may wish to consider sponsoring a faculty team to participate in the National Academies University of Wisconsin Summer Institute ([www.academiessummerinstitute.org](http://www.academiessummerinstitute.org)) during the summer of 2011 and then, in subsequent years, have the faculty team lead local efforts to train other faculty members and/or graduate students and postdocs.
- Faculty development experiences may include collaborations with other applicant institutions or non-applicant institutions. Proposals should include a description of what will happen to the collaboration when the grant ends.
- Postdoctoral fellows and graduate students may be involved in activities under this program area to assist in their training as future faculty members. However, requests for support must be within the context of teaching and mentoring undergraduates. Support for research training of graduate students and postdoctoral fellows is appropriate only if their research is an integral part of their teaching. It is important to ensure that there are effective mechanisms for the development of graduate students and postdoctoral fellows as future faculty members. When developing mentoring programs, institutions may wish to refer to the manual, University of Wisconsin-Madison guide *Entering Mentoring: A Seminar to Train a New Generation of Scientist*. Graduate students and postdoctoral fellows may participate in program component activities other than in faculty development. Budgeting for costs associated with faculty, postdocs, and graduate students participation in other program components should be included in the appropriate component area.

### Curriculum Development

- All requests for equipment and laboratory renovations should be well-justified and tied closely to specific plans for curriculum enhancement or student research at the undergraduate level. Equipment should be for student learning and not for faculty research. Requests for equipment (in all components) and laboratory renovations combined **must not exceed 50 percent of the total grant request**.
- The HHMI undergraduate program **does not** support the acquisition of major equipment for research purposes (except as part of start-up for new faculty), requests for endowment support, or the construction of new buildings. Support for any portion of major renovation projects is not allowed. The HHMI undergraduate program generally does not provide funds for the acquisition of major pieces of equipment such as an ultracentrifuge or a confocal microscope. Such requests should be

carefully justified in terms of their benefit to a substantial number of students and the curriculum.

- Requests for curriculum development should include evidence that the necessary expertise for planning, implementation, and assessment exists or will exist in the faculty. For assessment, programs may wish to consider using online evaluations to gauge student experiences, such as the HHMI Classroom Undergraduate Research Experience (CURE).
- Requests for new educational technology, such as multimedia software, should include a discussion of how the technology will enhance student learning.
- The development of courses/programs for prospective science educators, nonscience majors, and prospective scientists following nontraditional career tracks can be effective ways to broaden access to science.
- HHMI is interested in facilitating meaningful collaborations among biology, chemistry, physics, mathematics, engineering, computer science, and other science departments that result in new courses that replace traditional discipline-specific introductory courses.

### **Outreach and Transitions**

- Involve the relevant target populations of outreach programs (e.g., precollege teachers and administrators) in the development of those programs. When developing a precollege program, carefully consider the local and national standards that affect precollege curricula. Pre-service teacher programs should be developed in consultation with education departments, where appropriate.
- Requests for outreach programs should demonstrate broad involvement of full-time tenure-track university faculty, rather than only providing support for administrative positions to support the grant program.
- Participants should be provided with engaging, scientifically substantive projects tailored to their abilities, including science activities for precollege student or students at community colleges or four-year colleges that provide learning opportunities otherwise unavailable to them. Activities that facilitate the sustainability of the program, such as equipment loaner programs or assistance in implementing lab lesson plans can be important.
- Student and teacher laboratory experiences should be of a sufficient length to produce meaningful results (e.g., a full summer, a combined summer and academic year, or multiple years). Efforts to identify and provide longer-term support of persons with exceptional research potential are encouraged.
- Programs, which may include meaningful laboratory experiences, for pre- or in-service teachers can help them deliver contemporary science to the classroom. Stipends paid to teachers and/or students should be competitive in order to encourage the best persons to participate. When teachers or students take courses at the university, it can be important to pay for their tuition and fees.
- Bridge and mentoring programs can help transition students successfully to the college or university setting. These programs can be applicable to entering (precollege and community college) students as well as continuing (four-year college and university) students.
- Outreach activities may be enhanced through collaborations with other applicant institutions or non-applicant institutions. Proposals should include a description of what will happen to the collaboration when the grant ends. Applicants should provide letters of collaboration or support from the relevant partners.

### **Program Administration, Assessment and Dissemination**

- The budget request for each of the three components of program administration, program assessment, and program dissemination may not exceed 10 percent of the total budget, and the combined budget request for all three components **may not exceed 20 percent of the total budget.**

- Proposals should include explicit statements as to how funds will be administered, how they will be allocated for program activities and, if relevant, how internal awards will be made. Proposals should clearly describe the policies and procedures that will be used to establish priorities and monitor the outcome of HHMI support. Where appropriate, the grantee institution should establish an advisory committee to assist the program director in the allocation of funds, in selecting students for research opportunities, in selecting the faculty members for professional development support, and in selecting the laboratories to be equipped or renovated. The composition, responsibilities, and authority of this committee may be described with specific names or positions, or with types of individuals. Consider the involvement of relevant program participants, such as teachers, as appropriate.
- HHMI undergraduate grants do not pay indirect costs; however, up to 10 percent of the award may be budgeted for program administration, which typically includes items such as clerical support, preparation and dissemination of participant recruiting materials, and Internet access charges. Costs for faculty involvement (including the program director) in program activities should be budgeted in the Faculty Salaries line item under the appropriate program components and not under Program Administration. Requests for program administration **may not exceed 10 percent of the total budget.**
- It is very important to include a clear plan for assessing program outcomes, including the long-term impact of the program. The plan should indicate evaluation measures and instruments to be used and evaluators should be identified. The evaluation plan will be carefully examined by the proposal review panel. Previous HHMI grantees receiving undergraduate science education awards after 1998 should report data in the Previous Funding Outcomes section of the proposal.
- Applicants may find it helpful to use HHMI's *Maps and Measures* document in planning their HHMI program and activities, and subsequently developing an evaluation plan for assessment.
- Institutions receiving HHMI undergraduate awards will be required to track students and others participating in their HHMI-supported programs, new faculty appointments, and precollege teachers participating in outreach programs. Plans for tracking should be included in this section of the proposal, and budgets should include provision for tracking during the grant period. Plans for tracking of long-term outcomes, such as graduate and medical school enrollment and careers, should also be included. Requests for program assessment **may not exceed 10 percent of the total budget.**
- Applicants should provide reasonable plans for dissemination of program outcomes. It is anticipated that HHMI grantees will produce significant results in all of the program component areas. Grantees are expected to develop effective strategies to disseminate their products, strategies, and findings, and are encouraged to present their results for peer review at national meetings and in peer-reviewed journals, such as the American Society for Cell Biology's peer-reviewed CBE Life Sciences Education ([www.lifescied.org](http://www.lifescied.org)). Requests for program dissemination **may not exceed 10 percent of the total budget.**

## **Budget and Budget Justification**

- What is the value added by the grant? The grant should enable the institution to accomplish new things and not simply be a mechanism to fund core programs or for budget-relief. Requests for significant faculty salary support should be carefully justified.
- In the budget narrative, provide a clear breakdown (e.g., number of full-time equivalents, positions, program roles) of any personnel for whom salary support is requested.
- In the proposal narrative state explicitly how funds will be administered and allocated for program activities and, if relevant, how internal awards will be made. Proposals should clearly describe the policies and procedures that will be used to establish priorities and monitor the outcome of HHMI support.

## **Budget Policies**

- Data entered in a Component Summary must be accompanied by data in the corresponding Budget Component and Budget Justification.
- Any "Other" line item with data must be labeled or specified in the adjoining text field.
- The amount requested for equipment and laboratory renovations may not exceed 50 percent of any program component and the total amount for all equipment may not exceed 50 percent of the total grant budget.
- Equipment or computers with a unit cost of \$10,000 or greater must be itemized in the Budget Component Narrative.
- For the program component of "Faculty Development," report separately on budgets for new, current, or future faculty development in the budget justification.
- The requested budget for each of the following components must not exceed 10 percent of the total budget: program administration, program assessment, and program dissemination. The total budget request for all three components of program administration, program assessment, and program dissemination cannot exceed 20 percent of the total budget.
- The total requested budget cannot exceed \$2.2 million over the four-year period.

## **Budget Form**

- The budget form contains data fields for all line items for each of the four grant years. All totals and subtotals are calculated by the system and cannot be changed. Typically, award payments are spread equally over the four years of the grant, so prepare the total budget accordingly. Grant payments are fixed and will not be adjusted to budgets.
- The budget form is based on HHMI Grants' Chart of Accounts, a standardized budget with a hierarchy from line item to component. A Chart of Accounts glossary is provided below to guide in assigning costs consistent with HHMI policy. In some cases, however, the glossary will defer to the applicant institution's definition of a line item. The glossary also indicates the information required in the budget narrative for each line item.
- Budget data must be validated before applicants are able to submit proposals. Upon validation, the system will indicate any discrepancies—in calculation or with HHMI policy—that will prevent submission of the proposal. Once the items have been corrected the data, the system will allow applicants to proceed with proposal submission.

**Chart of Accounts Glossary - Definition of Terms and Required Budget Justification**

**Student Research**

**Definition.** On- or off-campus research experiences for undergraduate students; opportunities for students to participate in scientific meetings and other activities; and laboratory opportunities for students from other institutions.

**Student Stipends/Salaries**

**Definition.** Payments to students by grantee institutions for participation in grant-related activities, such as senior research, summer research, or special courses. Unless otherwise specifically allowed by the grantee institution, students should not be paid and also receive academic credit for the same work.

**Required Budget Justification.** Provide the number of students to receive payment for participation in grant-related activities, such as summer research or special courses, for each of the four grant years. For example, proposals for student laboratory research should provide the amount of the stipend or salary, the period the research is to take place (summer, academic year, or both), and the duration (e.g., three months). The nature of the research should be described in the Proposal Narrative.

**Faculty Salaries/Benefits**

**Definition.** Payments by the grantee institution to faculty of the grantee institution for their grant-related activities. **Note:** Support for faculty to supervise students in research projects is generally not allowed. However, the grant may provide incentives to encourage faculty to assume leadership roles in the program. Requests may include support for the program director's summer salary or up to that amount to support the program director's summer research program.

**Required Budget Justification.** Provide the number of faculty members to receive payment for grant-related activities, the base salary (or salaries) from which the requested amounts are calculated, and the general nature and duration of faculty involvement, for each of the four grant years. A detailed description of the role of faculty in the project should be provided in the Proposal Narrative.

**Grad Student/Postdoc Salaries/Benefits**

**Definition.** Payments by the grantee institution to graduate students or postdoctoral fellows of the grantee institution for their grant-related educational activities.

**Required Budget Justification.** Provide the number of students or fellows to receive salary and benefit support, the portion of the salary to be paid by the grant, the base salary (or salaries) from which the requested amounts are calculated, and the general nature and duration of graduate student or postdoctoral fellow involvement for each of the four grant years. A detailed description of the role of graduate students and postdoctoral fellows in the project should be provided in the Proposal Narrative.

**Living Expenses**

<p><b>Definition.</b> Payments to or on behalf of participants in grant-supported activities to help defray living expenses, such as housing and meals, while they are participating. <b>Note: This category may not be used for employees of the grantee institution. Comparable expenses of employees are to be reported under Travel and Meetings.</b></p>	<p><b>Required Budget Justification.</b> List all payments to or on behalf of student participants to help defray living expenses, such as housing and meals. Provide the expense amount, the period (summer, academic year, or both) and duration of the activity (e.g., three months), and the number of participants for each of the four grant years.</p>
<p><b>Supplies</b></p>	
<p><b>Definition.</b> The cost of any item considered consumable or with an expected useful life or purchase cost below the threshold for equipment. Use the guidelines in place at the grantee institution to define supplies. Such guidelines usually are based on expected minimum useful life and a threshold acquisition cost. (See Equipment and Computers, below, regarding parts and accessories for equipment and software for computers.) Cell lines and animals should be included under supplies.</p>	<p><b>Required Budget Justification.</b> List supplies by general category and give totals for each category for each of the four grant years.</p>
<p><b>Travel and Meetings</b></p>	
<p><b>Definition.</b> Travel and registration costs for students, faculty, or others supported by an HHMI grant, for participation in scientific or other professional meetings. This includes costs for participation in a meeting that is part of an HHMI grant-supported activity and costs of organizing a meeting that is an activity under an HHMI grant. <b>Note: Allowable costs and any limits for travel expenses (transportation, lodging, meals, etc.) are to be based on guidelines in place at the relevant grantee institution for reimbursement from grant funds.</b></p>	<p><b>Required Budget Justification.</b> Briefly describe the type and extent of all travel and registration costs of students for participation in the program or scientific or other professional meetings, and the purpose of the travel in terms of the proposed project for each of the four grant years. A detailed description of the activities should be provided in the Proposal Narrative.</p>
<p><b>Other</b></p>	
<p><b>Definition.</b> Expenses under the program component that are not otherwise included in the standard line items. <b>Note: Each line item under Other must be specified in the budget form.</b></p>	<p><b>Required Budget Justification.</b> Briefly describe and provide the number and cost per participant or activity, as applicable, for each of the four grant years.</p>
<p><b>Faculty Development</b></p>	

<p><b>Definition.</b> Start-up support for new faculty and opportunities for existing or future faculty to enhance their teaching or research skills. In your budget justification, specify whether support is for new, current, or future faculty development .</p>	
<p><b>Faculty Salaries/Benefits</b></p>	
<p><b>Definition.</b> Payments by the grantee institution to faculty of the grantee institution for their grant-related activities.</p>	<p><b>Required Budget Justification.</b> For each new faculty member, provide the salary and benefit support, the base salary from which the requested amount is calculated) for each of the four grant years, and a brief description and time frame for the appointment.</p> <p><b>Current Faculty Development Required Budget Justification.</b> Provide the number of faculty members to receive salary and benefit support/released time, the salary to be paid by the grant, the base salary (or salaries) from which the requested amounts are calculated, and the general nature and duration of faculty involvement for each of the four grant years. A detailed description of the role of faculty in the project should be provided in the Proposal Narrative.</p>
<p><b>Equipment</b></p>	
<p><b>Definition.</b> The cost of equipment, using the guidelines in place at the grantee institution to define equipment. Such guidelines usually are based on expected minimum useful life and a threshold acquisition cost. If parts or accessories are purchased along with the major piece of equipment, then include those items as part of the purchase cost of the equipment; if they are purchased later, report them as supplies unless they meet the criteria for equipment. Report equipment maintenance and repair costs here. <b>Note: The requests for equipment (subtotaled from each component) and laboratory renovations together may not exceed 50% of the program component subtotal budget.</b></p>	<p><b>Required Budget Justification.</b> Provide by general category, if applicable, equipment costs per faculty appointment for each of the four grant years. <b>Note: Itemize equipment with a unit cost of \$10,000 or more in the budget narrative.</b></p>
<p><b>Supplies</b></p>	
<p><b>Definition.</b> The cost of any item considered consumable or with an expected useful life or purchase cost below the threshold for equipment. Use the guidelines in place at the grantee institution to define supplies. Such guidelines usually are based on expected minimum useful life and a threshold acquisition cost. (See Equipment</p>	<p><b>Required Budget Justification.</b> Provide amount by general category per faculty appointment for each of the four grant years.</p>

<p>and Computers, above, regarding parts and accessories for equipment and software for computers.) Cell lines and animals should be included under supplies.</p>	
<p><b>Grad Student/Postdoc Salaries/Benefits</b></p>	
<p><b>Definition.</b> Payments by the grantee institution to graduate students or postdoctoral fellows of the grantee institution for their grant-related educational activities.</p>	<p><b>Required Budget Justification.</b> Provide the number of students or fellows to receive salary and benefit support, the portion of the salary to be paid by the grant, the base salary (or salaries) from which the requested amounts are calculated, and the general nature and duration of graduate student or postdoctoral fellow involvement for each of the four grant years. A detailed description of the role of graduate students and postdoctoral fellows in the project should be provided in the Proposal Narrative.</p>
<p><b>Travel and Meetings</b></p>	
<p><b>Definition.</b> Travel and registration costs for students, faculty, or others supported by an HHMI fellowship or grant, for participation in scientific or other professional meetings. This includes costs for participation in a meeting that is part of an HHMI grant-supported activity and costs of organizing a meeting that is an activity under an HHMI grant. <b>Note: Allowable costs and any limits for travel expenses (transportation, lodging, meals, etc.) are to be based on guidelines in place at the relevant grantee institution for reimbursement from grant funds.</b></p>	<p><b>Required Budget Justification.</b> Describe the type and extent of all travel and registration costs of faculty for participation in scientific or other professional meetings, for example, and the purpose of the travel in terms of the proposed project. A detailed description of the activities should be provided in the Proposal Narrative.</p>
<p><b>Other</b></p>	
<p><b>Definition.</b> Expenses under the program component that are not otherwise included in the standard line items. <b>Note: Each line item under Other must be specified in the budget form.</b></p>	<p><b>Required Budget Justification.</b> Briefly describe and provide the number and cost per participant or activity, as applicable, for each of the four grant years.</p>
<p><b>Curriculum Development</b></p>	
<p><b>Definition.</b> Curricular enhancements, including restructuring of existing courses and programs and development of science courses for both science and nonscience majors. Equipment, including laboratory teaching instrumentation and infrastructure for information-based technology, and laboratory renovations. Equipment (subtotal from each budget component) and laboratory renovations may not exceed 50 percent of the program subtotal budget.</p>	
<p><b>Faculty Salaries/Benefits</b></p>	

<p><b>Definition.</b> Payments by the grantee institution to faculty of the grantee institution for their grant-related activities.</p>	<p><b>Required Budget Justification.</b> Provide the number of and salaries/benefits support/released time for faculty members by the grant, the base salary (or salaries) from which the requested amounts are calculated, and the general nature and duration of faculty involvement for each of the four grant years. A detailed description of the role of faculty in the project should be provided in the Proposal Narrative.</p>
<p><b>Grad Student/Postdoc Salaries/Benefits</b></p>	
<p><b>Definition.</b> Payments by the grantee institution to graduate students or postdoctoral fellows of the grantee institution for their grant-related educational activities.</p>	<p><b>Required Budget Justification.</b> Provide the number of students or fellows to receive salary and benefit support, the portion of the salary to be paid by the grant, the base salary (or salaries) from which the requested amounts are calculated, and the general nature and duration of graduate student or postdoctoral fellow involvement for each of the four grant years. A detailed description of the role of graduate students and postdoctoral fellows in the project should be provided in the Proposal Narrative.</p>
<p><b>Technical Salaries/Benefits</b></p>	
<p><b>Definition.</b> Payments and benefits to technical staff for work related to the purposes of the grant. <b>Note: Salaries/benefits for technical personnel involved in grant-supported software development should be reported under Software Development.</b></p>	<p><b>Required Budget Justification.</b> Provide the number and salaries/benefits support requested for technical personnel, the base salary (or salaries) from which the requested amounts are calculated, and the general nature and duration of the technical personnel's role in curriculum and laboratory development for each of the four grant years. A detailed description of the role of technical personnel should be provided in the Proposal Narrative.</p>
<p><b>Laboratory Renovations</b></p>	
<p><b>Definition.</b> Expenses (other than equipment) incurred in renovating laboratories used for instructional or undergraduate research purposes. Use guidelines in place at the grantee institution to define renovation. <b>Note: The requests for equipment (subtotaled from each component) and laboratory renovations together may not exceed 50% of the program component subtotal budget.</b></p>	<p><b>Required Budget Justification.</b> For each laboratory renovation project, provide a brief description of its elements, total cost, duration, and expected completion date. Detailed descriptions of the scientific and educational context of the renovation should be provided in the Proposal Narrative. Expenses may include those other than equipment incurred in renovating laboratories, but may not include construction of new facilities.</p>
<p><b>Equipment</b></p>	
<p><b>Definition.</b> The cost of equipment, using the guidelines in place at the grantee institution to define equipment. Such guidelines</p>	<p><b>Required Budget Justification.</b> Provide equipment costs and briefly describe purpose by general category for each of the four grant years. Description of the</p>

<p>usually are based on expected minimum useful life and a threshold acquisition cost. If parts or accessories are purchased along with the major piece of equipment, then include those items as part of the purchase cost of the equipment; if they are purchased later, report them as supplies unless they meet the criteria for equipment. Report equipment maintenance and repair costs here. <b>Note: The requests for equipment (subtotaled from each component) and laboratory renovations together may not exceed 50% of the program component subtotal budget.</b></p>	<p>scientific and educational use of the equipment should be provided in the Proposal Narrative. <b>Note: Itemize equipment with a unit cost of \$10,000 or more.</b></p>
<p><b>Computers</b></p>	
<p><b>Definition.</b> Computers, software, and other computer-related items purchased for use by students, faculty, technical personnel, or others in grant-related research, coursework, or curriculum development. Include both hardware and software.</p>	<p><b>Required Budget Justification.</b> Provide costs for computer hardware, including laptop computers, personal computers, and software, for use by students, faculty, technical personnel, or others in grant-related activities such as coursework or curriculum development. Description of the scientific and educational use of the equipment should be provided in the Proposal Narrative. <b>Note: Itemize computers with a unit cost of \$10,000 or more.</b></p>
<p><b>Software Development</b></p>	
<p><b>Definition.</b> Expenses incurred in grant-supported development of software. Includes the relevant portions of salaries/benefits for faculty and technical personnel involved in developing software. Also includes licensing, documentation, and other related expenses.</p>	<p><b>Required Budget Justification.</b> Provide costs for the development of software. List the relevant portions of salaries and the base salaries from which the requested amounts are calculated, and briefly describe the roles of the faculty and technical personnel for each of the four grant years. A detailed description of the role of personnel involved should be provided in the Proposal Narrative.</p>
<p><b>Supplies</b></p>	
<p><b>Definition.</b> The cost of any item considered consumable or with an expected useful life or purchase cost below the threshold for equipment. Use the guidelines in place at the grantee institution to define supplies. Such guidelines usually are based on expected minimum useful life and a threshold acquisition cost. (See Equipment and Computers, above, regarding parts and accessories for equipment and software for computers.) Cell lines and animals should be included under supplies.</p>	<p><b>Required Budget Justification.</b> List supplies by general category and give totals for each category for each of the four grant years.</p>

<b>Travel and Meetings</b>	
<p><b>Definition.</b> Travel and registration costs for students, faculty, or others supported by an HHMI grant, for participation in scientific or other professional meetings. This includes costs for participation in a meeting that is part of an HHMI grant-supported activity and costs of organizing a meeting that is an activity under an HHMI grant. <b>Note: Allowable costs and any limits for travel expenses (transportation, lodging, meals, etc.) are to be based on guidelines in place at the relevant grantee institution for reimbursement from grant funds.</b></p>	<p><b>Required Budget Justification.</b> Provide costs for and briefly describe the type and extent of all travel and registration for faculty or technical personnel for participation in scientific or other professional meetings, for example, and the purpose of the travel in terms of the proposed project for each of the four grant years. A detailed description of the activities should be provided in the Proposal Narrative.</p>
<b>Other</b>	
<p><b>Definition.</b> Expenses under the program component that are not otherwise included in the standard line items. <b>Note: Each line item under Other must be specified in the budget form.</b></p>	<p><b>Required Budget Justification.</b> Briefly describe and provide the number and cost per participant or activity, as applicable, for each of the four grant years.</p>
<b>Outreach and Transitions</b>	
<p><b>Definition.</b> Outreach and transitions programs that link science departments with elementary and secondary schools, community colleges, or other four-year institutions; development of teachers and students, and enrichment of laboratory courses and other initiatives to strengthen preparation of preservice science teachers; prefreshman or community college bridge initiatives; and student development activities to support successful transitions to the college/university.</p>	
<b>Teacher Stipends/Salaries</b>	
<p><b>Definition.</b> Payments to precollege teachers, community college faculty, or faculty from four-year institutions other than the grantee institution who are participating in grant-related activities such as research experiences, workshops, or special courses. Generally, such payments are supplements to regular salary.</p>	<p><b>Required Budget Justification.</b> Provide the number of and stipends/salaries for teachers from elementary and secondary schools and faculty members from two-year and community colleges and other four-year institutions to receive payment to participate in outreach activities for each of the four grant years. Also provide the period the activities are to take place (summer, academic year, or both), and the duration of the activities (e.g., three months). The nature of the activities should be described in the Proposal Narrative.</p>
<b>Student Stipends/Salaries</b>	
<p><b>Definition.</b> Payments to students by grantee institutions for participation in grant-related activities, such as summer research</p>	<p><b>Required Budget Justification.</b> Provide the number of and stipends/salaries for students from elementary and secondary schools, two-year and community</p>

<p>or special courses.</p>	<p>colleges, and other four-year institutions to receive payment to participate in outreach activities for each of the four grant years. Also provide the period the activities are to take place (summer, academic year, or both), and the duration of the activities (e.g., three months). The nature of the activities should be described in the Proposal Narrative.</p>
<p><b>Faculty Salaries/Benefits</b></p>	
<p><b>Definition.</b> Payments by the grantee institution to faculty of the grantee institution for their grant-related activities. <b>Note: Payments to teachers participating in these activities are reported under Teacher Stipends/Salaries. Teachers include precollege teachers as well as community college faculty or faculty not from the grantee institution who participate in outreach activities.</b></p>	<p><b>Required Budget Justification.</b> Provide the number of and salaries/benefits for faculty members to receive payment for outreach and transitions activities, the base salary (or salaries) from which the requested amounts are calculated, and the general nature and duration of faculty involvement for each of the four grant years. A detailed description of the role of faculty in outreach activities should be provided in the Proposal Narrative.</p>
<p><b>Grad Student/Postdoc Salaries/Benefits</b></p>	
<p><b>Definition.</b> Payments by the grantee institution to graduate students or postdoctoral fellows of the grantee institution for their grant-related educational activities.</p>	<p><b>Required Budget Justification.</b> Provide the number of students or fellows to receive salary and benefit support, the portion of the salary to be paid by the grant, the base salary (or salaries) from which the requested amounts are calculated, and the general nature and duration of graduate student or postdoctoral fellow involvement for each of the four grant years. A detailed description of the role of graduate students and postdoctoral fellows in the project should be provided in the Proposal Narrative.</p>
<p><b>Living Expenses</b></p>	
<p><b>Definition.</b> Payments to or on behalf of participants in grant-supported activities to help defray living expenses, such as housing and meals, while they are participating. <b>Note: This category may not be used for employees of the grantee institution. Comparable expenses of employees are to be reported under Travel and Meetings.</b></p>	<p><b>Required Budget Justification.</b> List all payments to or on behalf of student and teacher participants to help defray living expenses, such as housing and meals. Provide the expense amount, the period (summer, academic year, or both) and duration of the activity (e.g., three months), and the number of participants for each of the four grant years.</p>
<p><b>Travel and Meetings</b></p>	
<p><b>Definition.</b> Travel and registration costs for students, faculty, or others supported by an HHMI fellowship or grant, for participation in scientific or other professional meetings.</p>	<p><b>Required Budget Justification.</b> Describe the type and extent of all travel costs, as applicable, (e.g., reimbursement for teachers attending laboratory workshops, student field trips, etc.), and the general</p>

<p>This includes costs for participation in a meeting that is part of an HHMI grant-supported activity and costs of organizing a meeting that is an activity under an HHMI grant. <b>Note: Allowable costs and any limits for travel expenses (transportation, lodging, meals, etc.) are to be based on guidelines in place at the relevant grantee institution for reimbursement from grant funds.</b></p>	<p>purpose of the travel in terms of the proposed project for each of the four grant years. A detailed description of the activities should be provided in the Proposal Narrative.</p>
<p><b>Equipment</b></p>	
<p><b>Definition.</b> The cost of equipment, using the guidelines in place at the grantee institution to define equipment. Such guidelines usually are based on expected minimum useful life and a threshold acquisition cost. If parts or accessories are purchased along with the major piece of equipment, then include those items as part of the purchase cost of the equipment; if they are purchased later, report them as supplies unless they meet the criteria for equipment. Report equipment maintenance and repair costs here. Computers purchased for outreach activities are included with equipment. <b>Note: The requests for equipment (subtotaled from each component) and laboratory renovations together may not exceed 50% of the program component subtotal budget.</b></p>	<p><b>Required Budget Justification.</b> Provide equipment costs and briefly describe purpose by general category for each of the four grant years. Description of the scientific and educational use of the equipment should be provided in the Proposal Narrative. <b>Note: Itemize equipment with a unit cost of \$10,000 or more.</b></p>
<p><b>Supplies</b></p>	
<p><b>Definition.</b> The cost of any item considered consumable or with an expected useful life or purchase cost below the threshold for equipment. Use the guidelines in place at the grantee institution to define supplies. Such guidelines usually are based on expected minimum useful life and a threshold acquisition cost. (See Equipment and Computers, above, regarding parts and accessories for equipment and software for computers.) Cell lines and animals should be included under supplies.</p>	<p><b>Required Budget Justification.</b> List supplies by general category and give totals for each category for each of the four grant years.</p>
<p><b>Other</b></p>	
<p><b>Definition.</b> Expenses under the program component that are not otherwise included in the standard line items. <b>Note: Each line</b></p>	<p><b>Required Budget Justification.</b> Briefly describe and provide the number and cost per participant or activity, as applicable, for each of the four grant years.</p>

<p>item under Other must be specified in the budget form.</p>	
<p><b>Program Administration</b></p>	
<p><b>Definition.</b> All direct administrative costs, including salaries, wages, benefits, computers, office supplies, and miscellaneous costs for program implementation. Include portions of the salaries or wages and attendant benefits of non-faculty support personnel, such as secretarial, clerical, or accounting staff, and other personnel responsible for administrative aspects of the grant (e.g., scheduling meetings and preparing annual financial reports). <b>Note: Program administration is limited to direct costs and may not exceed 10% of the budget total.</b></p>	
<p><b>Salaries/Wages/Benefits</b></p>	
<p><b>Definition.</b> Payments and benefits made to permanent employees for work, or for completion of specific tasks related to program administration of all grant components. Benefits may include, for example, medical or other insurance; pension; and annual, personal, administrative, or sick leave. (See Professional Services below for payments to consultants and independent contractors.) <b>Note: (1) Report compensation for program administration by faculty members under faculty salaries/benefits under the appropriate budget component. (2) In contrast, when responsibilities relate to grant administration for all other personnel, salaries/wages/benefits must be reported under Program Administration rather than with other grant-related activities.</b></p>	<p><b>Required Budget Justification.</b> Provide the number of and salaries/wages/benefits for employees with responsibility for grant administration (e.g., a secretary) and the base salaries from which the requested amounts are calculated for each of the four grant years. Released time for the program director and for faculty involvement in outreach and transitions programs is not considered an administrative cost and therefore is not subjected to the 10% limitation for program administration. Any funds requested for released time should be budgeted in the Faculty Salaries/Benefits categories of the program component to which they apply.</p>
<p><b>Office Expenses</b></p>	
<p><b>Definition.</b> Supplies and other office expenses (telephone, postage, etc.) and publishing costs relevant to the administration of an HHMI grant. <b>Note: This item is to be reported only under Program Administration, Assessment, or Dissemination.</b></p>	<p><b>Required Budget Justification.</b> Provide costs for supplies and other office expenses (e.g., telephone, postage, or publications) relevant to administration of the grant for each of the four grant years.</p>
<p><b>Other</b></p>	
<p><b>Definition.</b> Expenses under the program component that are not otherwise included in the standard line items. <b>Note: Each line item under Other must be specified in the budget form.</b></p>	<p><b>Required Budget Justification.</b> Briefly describe and provide the number and cost per participant or activity, as applicable, for each of the four grant years.</p>

<b>Program Assessment</b>	
<p><b>Definition.</b> Programs that monitor the effectiveness of science education activities; monitor progress toward project goals; assess student learning, achievement, or acquired skills; evaluate quality of curricula, programs, and teaching practices; track students participating in laboratory research through their precollege and undergraduate years and beyond; track teachers involved in program activities; or evaluate information-based technology. Activities may include formative and/or summative evaluation of the activities and data collection, entry, or analysis. The assessment or evaluation may be conducted by grantee institution personnel or consultants or independent contractors. Activities for dissemination of successful grants programs or products such as module distribution or workshops are to be included under this component.</p>	
<b>Salaries/Wages/Benefits</b>	
<p><b>Definition.</b> Payments and benefits made to permanent employees for work, or for completion of specific tasks related to assessment. Benefits may include, for example, medical or other insurance; pension; and annual, personal, administrative, or sick leave. (See Professional Services below for payments to consultants and independent contractors.)</p> <p><b>Note: When responsibilities relate to primarily to assessment salaries/wages/benefits must be reported under Program Assessment rather than with other grant-related activities.</b></p>	<p><b>Required Budget Justification.</b> Provide the number of employees with responsibility for grant program assessment activities (e.g., an administrator or faculty member) and the base salaries from which the requested amounts are calculated for each of the four grant years.</p>
<b>Office Expenses</b>	
<p><b>Definition.</b> Supplies and other office expenses (telephone, postage, etc.) and publishing costs relevant to the assessment of an HHMI grant. <b>Note: This item is to be reported only under Program Administration, Assessment, or Dissemination.</b></p>	<p><b>Required Budget Justification.</b> Provide costs for supplies and other office expenses (e.g., telephone or postage) relevant to assessment of the grant for each of the four grant years.</p>
<b>Professional Services</b>	
<p><b>Definition.</b> Payments made to consultants and independent contractors for work or for completion of specific tasks related to assessment. Includes individuals who are not employees who provide professional services or perform special tasks for which a standard fee has been negotiated.</p>	<p><b>Required Budget Justification.</b> Provide costs (e.g., number of personnel and salaries) for non-employee professional services (e.g., outside consultants or computer programmers) related to program assessment for each of the four grant years.</p>
<b>Other</b>	
<b>Definition.</b> Expenses under the program	<b>Required Budget Justification.</b> Briefly describe and

<p>component that are not otherwise included in the standard line items. <b>Note: Each line item under Other must be specified in the budget form.</b></p>	<p>provide the number and cost per participant or activity, as applicable, for each of the four grant years.</p>
<p><b>Program Dissemination</b></p>	
<p><b>Definition.</b> Plans for dissemination include sharing of the results of program efforts and outcomes in planning, development, implementation, and impact. Dissemination can include venues and mechanisms such as program and HHMI webpages, peer-reviewed publications, national meetings, and other media sources.</p>	
<p><b>Salaries/Wages/Benefits</b></p>	
<p><b>Definition.</b> Payments and benefits made to non-faculty support employees for completion of specific tasks related to dissemination. Benefits may include, for example, medical or other insurance; pension; and annual, personal, administrative, or sick leave. (See Professional Services below for payments to consultants and independent contractors.) <b>Note: When responsibilities primarily relate to dissemination, salaries/wages/benefits must be reported under Program Dissemination rather than with other grant-related activities.</b></p>	<p><b>Required Budget Justification.</b> Provide the number of employees with responsibility for grant program dissemination activities (e.g., an administrator or faculty member) and the base salaries from which the requested amounts are calculated for each of the four grant years.</p>
<p><b>Office Expenses</b></p>	
<p><b>Definition.</b> Supplies and other office expenses (telephone, postage, etc.) and publishing costs relevant to the dissemination of an HHMI grant. <b>Note: This item is to be reported only under Program Administration, Assessment, or Dissemination.</b></p>	<p><b>Required Budget Justification.</b> Provide costs for supplies and other office expenses (e.g., telephone or postage) relevant to dissemination of the grant for each of the four grant years.</p>
<p><b>Professional Services</b></p>	
<p><b>Definition.</b> Payments made to consultants and independent contractors for work or for completion of specific tasks related to dissemination. Includes individuals who are not employees who provide professional services or perform special tasks for which a standard fee has been negotiated.</p>	<p><b>Required Budget Justification.</b> Provide costs (e.g., number of personnel and salaries) for non-employee professional services (e.g., outside consultants or computer programmers) related to program dissemination for each of the four grant years.</p>
<p><b>Other</b></p>	

**Definition.** Expenses under the program component that are not otherwise included in the standard line items. **Note: Each line item under Other must be specified in the budget form.**

**Required Budget Justification.** Briefly describe and provide the number and cost per participant or activity, as applicable, for each of the four grant years.

### Institutional Info

- Enter amounts as indicated.
- If necessary, use the Comments textbox to provide explanations of the institutional information provided (e.g., some institutions collect data only on the basis of white or minority students).

### Curriculum Vitae

- **Program Director:** The program director will be responsible for administration of the grant and for establishing the necessary review and evaluation processes for program activities. It is expected that the individual designated as program director will have demonstrated successful experience in research, education, and grant administration. The program director for the core grant proposal will also be the program director for the Experiment in Undergraduate Science Education grant proposal.
- **Key Faculty or Personnel:** Key faculty or personnel are individuals with substantial involvement in the implementation of the proposed activities. They can include members of the advisory committee, program coordinators, faculty, and teachers. Applicant institutions may designate a program co-director, but HHMI will consider the program director as the individual responsible for the administration of the grant.

### Letters of Support

- **President's Letter:** A signed letter of support must come from the institution's president/chancellor. The letter should specify the institution's commitment, financial and otherwise, to the HHMI proposal for both the core grant and, if appropriate, the Experiment in Undergraduate Science Education grant.
- **Tax Letter:** Applicants must provide a document confirming the institution's tax-exempt status. The document should include the institution's tax ID number.
- **Collaborating Institutions:** Signed letters of commitment or support from up to 10 collaborators can be included. Where appropriate, one letter of support signed by all collaborating institutions in a joint activity may be used instead of multiple letters.

## OTHER ITEMS

### **Instructions for Proposal Formatting**

- Observe limitations on length for each proposal section and minimum font size (11-point font, proportional, preferably Times New Roman). The limitations in the following table are also indicated before each relevant text or upload field in the system.

<b>Field</b>	<b>Limit</b>
Executive Summary	4,000 characters
Component Summaries	3,500 characters per component
Proposal Narrative	22 pages (7,700 words double-spaced)
Budget Justification	4,000 characters per component
CVs for Program Director and up to 5 Key Faculty or Personnel	4 pages (2,800 words) per CV
President's Letter, IRS Letter, and up to 10 Letters of Support	1 page (700 words) per letter

- Use the budget and other forms as they are provided in the HHMI Competition System.
- Proofread the entire proposal carefully before submitting it. Applicants will be able to review the content in a PDF version from the Validate/Submit page of the competition system. The PDF version, which can be viewed and printed at any time, gives applicants an opportunity to see the proposal as the reviewers will see it.

### **Validating and Submitting the Proposal**

- Proposals cannot be submitted until they are validated.
- The validation page will reveal the status of each of the proposal's elements and instances where revisions will need to be made.
- Validations include those related to completeness, format, (e.g., checking for page length) and policy ( e.g., the 10 percent limit on program administration in the proposal budget).
- Once all validation issues have been resolved, the applicant is able to view the proposal in PDF and then to submit it.
- The deadline for the electronic submission of the proposal is 2:00 p.m. ET October 1, 2009. The deadline for receipt at HHMI of the hard copy of the proposal is 2:00 p.m. ET October 8, 2009.
- The Proposal Contact will receive an email confirming that the electronic submission has occurred successfully.
- Mail one hard copy of the proposal for receipt at HHMI by October 8, 2009 to :

HHMI Undergraduate Science Education Program  
Grants and Special Programs  
4000 Jones Bridge Road  
Chevy Chase, Maryland 20815-6789

**Important Dates and Times**

- May 14, 2009, 2:00 p.m. ET – Deadline to submit intent to apply
- October 1, 2009, 2:00 p.m. ET – Deadline for electronic submission of the proposal
- October 8, 2009, 2:00 p.m. ET – Date for receipt of hard copy of proposal by HHMI
- May 2010 – Announcement of 2010 awards

**Questions**

For inquiries, contact Andrew Quon, program officer, or Billy Biederman, program assistant, at (301) 215-8895, or e-mail [ugradcomp@hhmi.org](mailto:ugradcomp@hhmi.org).

For information about this competition, including a list of invited institutions and descriptions of programs funded in previous competitions, go to [www.hhmi.org/universities](http://www.hhmi.org/universities).