

**HHMI Undergraduate Science Education – Colleges
2008 Competition System
Proposal Guidelines**

It is recommended that you print this document to use as a reference.

Support E-mail Addresses and Phone Numbers

For questions related to the submission process, please contact HHMI at ugradcomp@hhmi.org or 301-215-8872. For technical assistance, please contact websupport@hhmi.org.

Important Dates and Times

- May 16, 2007, 2:00 p.m. ET – Deadline to submit intent to apply
- October 17, 2007, 2:00 p.m. ET – Deadline for electronic submission of the proposal
- October 24, 2007 – Date for receipt of hard copy of proposal by HHMI
- May 2008 – Announcement of 2008 awards

Web Resources

- The Program Announcement, Grant Profiles, and other information pertinent to the 2008 competition may be found at www.hhmi.org/colleges. 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 institutions 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).
- American Association for the Advancement of Science, *Science. Education Forum* (<http://www.sciencemag.org/sciext/educationforum/>).
- 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).
- The American Society for Cell Biology's online, peer-reviewed *CBE Life Sciences Education* (www.lifescied.org)

FORMATTING AND SUBMITTING THE PROPOSAL

- Observe limitations on length for each proposal section (e.g., 7000 words, double-spaced, for the Proposal Narrative) and minimum font size (11-point font, proportional, preferably Times New Roman). The limitations in the following table are repeated before each relevant text or upload field in the system.

Field	Limit
Executive Summary	5,000 characters
Component Summaries	3,500 characters per component
Previous Funding Outcomes	1,400 words, single-spaced
Proposal Narrative	7,000 words, double-spaced
Budget Justification	5,000 characters per budget component
CVs for Program Director and up to 5 Other Key Faculty or Personnel	Program Director: 4,200 words Other Key Faculty or Personnel: 1,400 words per CV
President's Letter, IRS Letter, and up to 10 Letters of Support	1,400 words per letter
Grant Profile	255 characters per component

- Use the budget and other forms as they are provided in the HHMI Competition System.
- Proofread your proposal carefully before submitting it. You 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 you an opportunity to see the proposal as the reviewers will see it.
- Mail a hard copy of the proposal, for receipt at HHMI by October 24, 2007, to:

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

GENERAL TIPS FOR WRITING THE PROPOSAL

- Faculty members in the relevant science departments should take the lead in developing and writing the proposal.
- Applicant institutions must name a program director who will be responsible for administration of the funds and for establishing the necessary review and evaluation processes for program activities. It is expected that the individual designated as program director will have proven track records in research, education, and administration.
- 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 determining which faculty members should receive professional development support, and in deciding which laboratories are 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.
- The proposal should demonstrate broad, significant faculty involvement in all aspects of the proposed initiatives. External reviewers will look carefully to see that responsibilities for program development and administration are distributed as widely as possible. Consider the involvement of program participants, such as teachers, in program development, as appropriate.
- When relevant, include plans for continuing/institutionalizing program activities after HHMI funds have been expended. Institutional commitment to the proposed activities is seen as an added strength to the proposal because it bodes well for long-term impact.
- Begin the proposal narrative with a one- to two-page general description of the objectives and major components of the proposal. Describe the need for support for the proposed activities and a strategy for their implementation. Use the remaining pages to give specifics on your proposed program. Distinguish continuing from newly proposed activities in the proposal narrative.
- Since the proposal should reflect both the strengths and needs of the applicant institution, include in the proposal narrative a brief description of the institution, how it views its educational mission, and what science programs it currently offers. You 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. Do not repeat institution data that are in the Institutional Information forms.
- An overall theme (e.g., curricular) that unifies several program areas can sometimes bode well for the proposal's success and long-term impact. Previous HHMI grantees should clearly distinguish between new and continuing programs or activities.
- Collaborations between applicant institutions (e.g., a regional collaboration) or between applicant and non-applicant institutions may be proposed in all program components. 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. Note: If you are proposing programs that involve collaboration with other institutions, the proposal must include letters (no more than 10 letters, two pages each) that specify the extent to which the collaborating institutions are willing and able to participate.
- 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 joint proposals. Thus, if only one of the proposals is funded, the grantee institution may continue the collaborative activities under the HHMI grant.
- Remember that it is not necessary to request support in every program component area. It may be advisable to let consistency with the institution's mission and track record outweigh the desire to request support in each area. If the institution has no track record in an area of requested support, a pilot study may help assure reviewers that the activity will be a success.
- If the applicant institution wishes to describe activities related to a component even if funding is not requested from HHMI (e.g., a science outreach program that is funded by another source), the institution may do so in the proposal narrative.

PROPOSAL SECTIONS

Login Page

- Use the ID and password that was e-mailed to the Proposal Contact to access the Proposal Task.

Home Page

- Use the Update Profile link only to make corrections to the contact information for the applicant institution's president. Do not use to change the identity of the president. If the president is different from the person in the Update Profile fields, please contact HHMI at ugradcomp@hhmi.org to request a change.
- Use the Change Password link as needed.

Proposal Contact

- This page is pre-populated with information submitted during the Intent to Apply process. The person entered as the Proposal Contact will serve as the primary contact to HHMI during proposal preparation and submission. This person may be, but is not necessarily the same as, the Program Director.
- Fill in any missing information and correct any misspellings.
- If the identity of the Proposal Contact changes, only the person authorized by the applicant institution's president to submit the Intent to Apply may change the Proposal Contact via the Intent to Apply module.
- The Proposal Contact does not have access to the Intent to Apply module.

Executive Summary

- In this text field, using no more than 5,000 characters, enter a summary of the proposal, highlighting its most significant elements.
- To the extent possible, the executive summary should track the order of the component summaries and proposal narrative.
- See Proposal Narrative section, under Components, for a description of each component.

Component Summary

- Expand here on the executive summary. Using no more than 3,500 characters per component, briefly describe each component for which funding is requested.
- It is not necessary to request funding in more than one component. In cases where no funding is requested, select the Not Applicable box.
- Data entered in the component summaries, budget components, and budget justifications will be cross-validated to ensure that the applicant has intentionally and not inadvertently omitted any component.
- See Proposal Narrative section, under Components, for a description of each component.

Previous Funding Outcomes

- It is very important to provide a programmatic context for your proposal, including a thorough discussion of how the proposed initiatives relate to activities undertaken with any earlier HHMI undergraduate program support or other external funding. Include information on assessment outcomes and lessons learned from previously supported activities, as relevant.
- Document the progressive impact of HHMI or relevant programs at all levels (e.g., on students, faculty, department(s), and institution and the commitment of the latter three to the programs). State how the success of these programs led to leveraging of other funds, as appropriate.
- For previous HHMI undergraduate program grantees, in cases where your institution chooses not to continue or request funding for activities previously supported, briefly discuss why those activities are being discontinued or not proposed for further funding.

- If your institution has not previously received HHMI undergraduate support, you should use this section to discuss how the proposed activities relate to existing or past initiatives, possibly with funding from other outside sources.
- Applicants should provide quantitative as well as qualitative evidence of the success of their programs for as long a period as possible and for all program areas.
- Support qualitative assessment with quantitative data to the extent possible. Reviewers will carefully evaluate this section of your proposal.
- The templates in Appendix 1, at the end of this document, are provided as guidance for reporting the long-term outcomes of undergraduates and postdoctoral fellows (or graduate students, as appropriate) supported by HHMI grants, but applicants should not feel limited to the templates and may use other measures that demonstrate the long-term impact of past grants.
- There is a 1,400 word limit, and the text should be single-spaced in Previous Funding Outcomes.

Proposal Narrative

- The Proposal Narrative should detail the objectives and components of your proposed program. Please use the guidelines below, in conjunction with information, such as the evaluation criteria, in the Program Announcement, to organize and develop this section.
- Describe the need for support for the proposed activities and a strategy for their implementation. Give a brief overview of the institution and its educational mission as it relates to the proposed programs and its capacity or experience to carry out the proposed activities. Include information about the science faculty, science programs currently offered, recent activities aimed at strengthening undergraduate science education, and any distinctive elements of the institution's overall science program.
- You may briefly discuss relevant program activities for which HHMI support is not being sought if you believe the information will give reviewers a better overall understanding of your proposed program.
- If you are proposing programs that involve collaboration with other institutions, the proposal must include letters (no more than 10 letters, two pages each) that specify the extent to which the collaborating institutions are willing and able to participate. Plans should be included to maintain the collaborations beyond the term of the HHMI grant.
- If two or more applicant institutions are proposing to collaborate, each collaborating institution is advised to carve out specific portions of the proposed joint activities in case not all collaborators are funded.
- The Proposal Narrative is limited to 7,000 words and should be double-spaced.
- Provide a discussion of each program component. Descriptions of each component and recommendations are provided below.

COMPONENTS

1. Student Research and Broadening Access to Science

- Pay careful attention to the quality of any proposed student laboratory research activities. Students should be provided with engaging, scientifically substantive projects tailored to their abilities. In some cases, applicant institutions may want to look beyond their own campuses to research universities or to private industry or government laboratories to provide students with the greatest research options. Student research experiences may be expanded through collaborations with other applicant institutions or linkages with non-applicant institutions. Applicants should include plans to support any collaboration beyond the grant term.
- Student laboratory experiences should be of a sufficient length to produce meaningful results (e.g., a full summer, or a combined summer and academic year). Students involved in longer-term projects, or those demonstrating exceptional research ability, should be provided with multiple experiences to encourage their talent. Participants need not be limited to science majors. Research experiences may be just as valuable to science education or other majors.

- Describe the current research environment, including type of laboratory projects open to students and current level of student involvement. In requesting funds for activities to broaden access and opportunities, you should include current efforts to recruit and retain students and plans to strengthen these existing programs or develop new ones. Efforts to leverage other sources of support to broaden these efforts can be included, as can efforts to collaborate with other applicant institutions or departments of the applicant's institution or link with non-applicant institutions.
- 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. Research experiences mentored by HHMI international research scholars may be supported through this grant.
- Activities that facilitate the culture of research, such as local symposia or attendance at national meetings, are seen to 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.
- Note: In the past, review panels generally have not recommended direct support for faculty to supervise students in research projects. As in the past, the panel will support 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 for research or other educational activities associated with the program director's summer research.

However, beginning with the 2008 competition, HHMI will allow honoraria for faculty who mentor undergraduates in summer research. The total budget for faculty honoraria should not exceed 10 percent of the subtotal for the Student Research component.

2. New, Current, and Future Faculty Development

- Provide a clear description of any new faculty positions. Reviewers will look carefully at the amount of time new faculty are assigned to administrative, committee, or program responsibilities to ensure that they have adequate time to develop their teaching and research. It is expected that salaries and other support, such as laboratory start-up, will be competitive enough to attract an adequate pool of new faculty candidates.
- Requests for new faculty appointments should be for tenure-track positions and be well justified in terms of long-term plans for other aspects of the proposal, such as student research and curriculum development. Requests must include a discussion of the expected impact of the appointments on undergraduate education, as well as specific plans for continuing the position beyond the grant period. State clearly the contribution of the applicant institution to the appointment.
- As with new faculty development, activities for current faculty must be well-articulated with other proposal areas. Activities that permit current faculty to enhance either or both research and teaching skills are appropriate. In addition the reviewers look favorably on activities that broaden faculty experiences, such as cross-disciplinary efforts and mentoring of junior faculty by senior faculty.
- Faculty development experiences may be expanded through collaborations with other applicant institutions or linkages with non-applicant institutions. Applicants should include plans to support any collaboration beyond the grant term.
- Postdoctoral fellows (and graduate students, as appropriate) may be involved in activities under this program area to assist in their training for future teaching roles and as future faculty members. However, requests for support must be within the context of teaching and mentoring undergraduates. Support solely for research training of graduate and postdoctoral students is not allowed and is appropriate only if their research is an integral part of their teaching. To prepare graduate and postdoctoral students for future teaching roles, these individuals may be involved in activities under the other program areas of this

competition. Costs associated with their involvement should be budgeted under the appropriate program area.

3. Curriculum, Equipment, and Laboratory Development

- All requests for equipment and laboratory renovations should be well-justified and tied closely to specific plans for curriculum enhancements or faculty-student research. Proposals with equipment "wish lists" and those including items clearly for faculty research are usually unsuccessful. Equipment should be primarily for instruction or equally for instruction and research. As with equipment, requests for laboratory renovations must be well articulated with other aspects of the proposal, such as curriculum and faculty development. Requests for equipment (in all relevant components) and laboratory renovations combined **must not exceed 50 percent of the total grant request.**
- HHMI's undergraduate program **does not** support the acquisition of major equipment for research purposes (except for new faculty development), requests for endowment support, or the construction of new buildings. Support for major renovation projects or incremental funding of major renovation projects is not allowed.
- Requests for funds to renovate facilities or purchase equipment should indicate how the expenditure will enhance the teaching of science or promote undergraduate research facilities.
- Reviewers usually examine carefully requests to acquire large pieces of equipment, such as ultracentrifuges, confocal microscopes, and scanning tunneling microscopes. Such items should be thoroughly justified in terms of their benefit to a substantial number of students and the curriculum. You may want to discuss provisions for supporting the maintenance of any large pieces of equipment.
- Requests for curriculum development should be accompanied by evidence of expertise existing or to be acquired among current or to-be-recruited faculty, indication of a potentially broad impact on students, and enough detail so that the reviewers will be able to tell what the course will offer students.
- Requests for new educational technology, such as multimedia software, should include a discussion of how the technology will supplement instruction.
- Where appropriate for the institution's mission and track record, development of courses/programs for prospective science educators, nonscience majors, and prospective scientists following nontraditional career tracks are encouraged because they can potentially widen career opportunities for students.
- Requests for technical support, such as research technicians, must be in the context of curriculum development and faculty-student research. If the technician is to be shared among faculty members, provide a clear plan for how the person's time will be apportioned. The applicant institution should indicate a commitment to the position in such ways as matching support and providing a plan to continue the position beyond the grant term.

4. Precollege and Other Outreach

- Evidence should be provided that the target populations of outreach programs (e.g., precollege teachers, schools) have been closely involved in the development of those programs. Precollege programs should be developed in consultation with teachers and school administrators. State and national standards, which often drive precollege curricula, should be considered. Similarly, preservice teacher programs should be developed in consultation with education departments, where applicable.
- Requests for outreach programs should demonstrate broad involvement by faculty of all ranks. For purposes of this proposal, "faculty" is defined as current tenured and untenured department members rather than individuals brought in to teach in or administer program activities.
- Pay careful attention to the quality of any proposed teacher or student laboratory research activities. Participants should be provided with engaging, scientifically

substantive projects tailored to their abilities. Activities that expand into the teachers' classrooms, such as equipment footlockers, and follow-up assistance in running or developing labs are thought to help ensure that the teachers' success in the program continues into the field.

- Student and teacher laboratory experiences should be of a sufficient length to produce meaningful results (e.g., a full summer, or a combined summer and academic year). Participants involved in longer-term projects, or those demonstrating exceptional research ability, should be provided with multiple experiences to encourage their talent.
- The stipend paid to teachers and/or students should be competitive with earnings from other jobs. Your institution is encouraged to waive or assume tuition for teachers or students taking courses at your institution.
- Outreach activities may be expanded through collaborations with other applicant institutions or linkages with non-applicant institutions. Applicants should include plans to support any collaborations beyond the grant term. Commitment letters (or letters of support) from school superintendents, principals, teachers, and other potential program participants are of major importance to reviewers in their evaluation of proposed outreach activities.

5. Program Administration, Assessment, and Dissemination

- Applicant institutions must name a program director who will be responsible for administration of the funds and for establishing the necessary review and evaluation processes for program activities. It is expected that the individual designated as program director will have proven track records in research, education, and administration.
- Proposals must 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 determining which faculty members should receive professional development support, and in deciding which laboratories are 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.
- HHMI undergraduate grant initiatives do not allow for indirect costs; however, up to 10 percent of the award may be budgeted for program administration, which typically includes clerical support, preparation and dissemination of participant recruiting materials, Internet access charges, and the like. 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 **must 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 are expected to provide comprehensive quantitative as well as qualitative outcome data under the Previous Funding Outcomes section of the proposal.
- Standards developed by the National Research Council for science education could suggest useful assessment strategies for college-level programs.
- 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. The attached tracking

sheet may provide guidance on developing strategies for examining the impact of the grant on long-term outcomes for undergraduates, graduate students, postdoctoral fellows, and new faculty appointments.

- Applicants are encouraged to provide a strategy for disseminating program practices and products as widely as possible to the science education community and to the public. Preferably, materials should be available in electronic format and at no cost to users. Where appropriate, applicants should provide national dissemination strategies, such as national digital libraries or workshops, for successful programs and products resulting from the grant.

Budget and Budget Justification

- For a detailed description of the proposal budget requirements, view the budget guidelines section at the end of this document.

Institutional Information

- Enter amounts as indicated.
- Enter only numbers in the form, i.e., do not include dollar signs, spaces, decimal points, or commas.
- If there are circumstances that need explanation (e.g., some institutions collect data only on the basis of white or minority students), do so in the Comments field located at the bottom of this page.

Curriculum Vitae

- Enter contact information and upload CVs for the program director (one document up to 4,200 words) and up to 5 other key faculty members or personnel with substantial involvement in the implementation of the proposed activities (up to 1,400 words per CV).

Letters of Support

- Upload PDFs of signed letters of commitment or support from the applicant institution's president and up to 10 collaborators and a letter confirming the institution's IRS tax-exempt status. Each letter is limited to 1,400 words.

Grant Profile

- Should the applicant institution be awarded a grant, a brief description of each component of the proposal will be posted on HHMI's public website.
- The profile is thus the first public face of the grant. It should capture the grant in about one sentence per component. Each component is limited to 255 characters.
- To see profiles of past or current grantees, visit www.hhmi.org/grants/reports/pgmprof/main.

Validate and Submit

- 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 must 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 submit it.
- The penultimate step is the electronic submission of the proposal by 2:00 p.m. ET October 17, 2007, which must be followed by receipt of the hard copy PDF by HHMI by October 22, 2007.
- The Proposal Contact will receive an email confirming that the electronic submission has occurred successfully.

BUDGET GUIDELINES

Preparing the Budget

- 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. If there is a discrepancy between the system's totals and yours, you can make adjustments at the line item level only. Remember that, in general, award payments are spread equally across the four years of the grant, so prepare your 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 you in assigning costs consistent with HHMI policy. In some cases, however, the glossary will defer to your 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 you submit your proposal. Upon validation, the system will alert you to any discrepancies—in calculation or with HHMI policy—that will prevent submission of the proposal. Once you have corrected the data, you will be allowed to proceed with proposal submission.

Tips for Developing the Budget

- Try to achieve a balance between salaries for institution personnel involved in the grant and compensation for grant participants. Budgets that are heavy on faculty salaries but low on student stipends, for example, are scrutinized.
- 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.

HHMI Budget Policy

- 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.
- Total honoraria for faculty members who mentor students in summer research may not exceed 10 percent of the Student Research subtotal.
- The total amount requested for equipment (under new, current, and future faculty development; curriculum, equipment, and laboratory development; and precollege and other outreach) and laboratory renovations must not exceed 50 percent of the total grant budget.
- Equipment or computer with a unit cost of \$10,000 or greater must be itemized in the Budget Component Narrative.
- Report separately on budgets for new, current, or future faculty development in the budget justification.
- The total requested for program administration must not exceed 10 percent of the total budget.
- The total requested budget cannot exceed \$1.6 million over the four-year period.

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

1. Student Research and Broadening Access to Science	
<p>Definition. Student research and programs to broaden access to science, including opportunities for women and underrepresented minorities, such as on- and off-campus laboratory experiences; prefreshman bridging initiatives; opportunities for students to participate in scientific meetings and other activities; and laboratory opportunities for students from other institutions.</p>	
Student Stipends/Salaries	
<p>Definition. Payments to students by grantee institutions for participation in grant-related activities, such as senior research, summer research, or special courses.</p>	<p>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.</p>
Faculty Salaries/Benefits	
<p>Definition. Payments by the grantee institution to faculty of the grantee institution for their grant-related activities. Note: Review panels generally do not recommend direct support for faculty to supervise students in research projects. However, they will support 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 for research or other educational activities associated with the program director's summer research. Do not place honoraria for faculty who supervise summer research in Faculty Salaries/Benefits. See Other below.</p>	<p>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.</p>
Grad Student/Postdoc Salaries/Benefits	
<p>Definition. Payments by the grantee institution to graduate students or postdoctoral fellows of the grantee institution for their grant-related educational activities.</p>	<p>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</p>

	graduate students and postdoctoral fellows in the project should be provided in the Proposal Narrative.
Living Expenses	
Definition. 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. 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.	Required Budget Justification. 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.
Supplies	
Definition. 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.	Required Budget Justification. List supplies by general category and give totals for each category for each of the four grant years.
Travel and Meetings	
Definition. 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. 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.	Required Budget Justification. 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.
Other (Faculty Honoraria)	
Use a separate line in Other for honoraria for faculty who mentor students in summer research. Note: The total budget for faculty honoraria may not exceed 10 percent of the subtotal for the Student Research	Required Budget Justification. Provide dollar amount and base salary and identify each faculty member to receive an honorarium to supervise students (state number of per faculty member) in summer research for each of the four grant years. A

component.	description of each research project should be provided in the Proposal Narrative.
Other	
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.

2. New, Current, and Future Faculty Development	
Definition. Start-up support for new faculty and opportunities for existing or future faculty to enhance their teaching or research skills. Note: Although not differentiated in the budget form, differentiate all line items between new, current, and future faculty development in the budget narrative.	
Faculty Salaries/Benefits	
Definition. Payments by the grantee institution to faculty of the grantee institution for their grant-related activities.	<p>Required Budget Justification. 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>Current Faculty Development Required Budget Justification. 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>
Equipment	
Definition. 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	<p>Required Budget Justification. Provide by general category, if applicable, equipment costs per faculty appointment for each of the four grant years. Note: Itemize equipment with a unit cost of \$10,000 or more in the budget narrative.</p>

<p>repair costs here. Note: The budgets for equipment (totaled from each budget component) and laboratory renovations together may not exceed 50% of the total budget.</p>	
<p>Supplies</p>	
<p>Definition. 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 are usually 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>Required Budget Justification. Provide amount by general category per faculty appointment for each of the four grant years.</p>
<p>Grad Student/Postdoc Salaries/Benefits</p>	
<p>Definition. Payments by the grantee institution to graduate students or postdoctoral fellows of the grantee institution for their grant-related educational activities.</p>	<p>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.</p>
<p>Travel and Meetings</p>	
<p>Definition. 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. 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.</p>	<p>Required Budget Justification. 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>Other</p>	

<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.</p>	<p>Required Budget Justification. Briefly describe and provide the number and cost per participant or activity, as applicable, for each of the four grant years.</p>
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3. Curriculum, Equipment, and Laboratory Development

Definition. 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 (totaled from each budget component) and laboratory renovations may not exceed 50 percent of the entire budget total.

<p>Faculty Salaries/Benefits</p>	
<p>Definition. Payments by the grantee institution to faculty of the grantee institution for their grant-related activities.</p>	<p>Required Budget Justification. 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>Grad Student/Postdoc Salaries/Benefits</p>	
<p>Definition. Payments by the grantee institution to graduate students or postdoctoral fellows of the grantee institution for their grant-related educational activities.</p>	<p>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.</p>

<p>Technical Salaries/Benefits</p>	
<p>Definition. Payments and benefits to technical staff for work related to the purposes of the grant. Note: Salaries/benefits for technical personnel involved in grant-supported software development should be reported under Software Development.</p>	<p>Required Budget Justification. 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</p>

	personnel should be provided in the Proposal Narrative.
Laboratory Renovations	
Definition. Expenses (other than equipment) incurred in renovating research or instructional laboratories. Use guidelines in place at the grantee institution to define renovation. Note: Laboratory renovations may not include construction of new facilities. The budgets for equipment (totaled from each budget component) and laboratory renovations together may not exceed 50% of the total budget.	Required Budget Justification. 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.
Equipment	
Definition. 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. Note: The budgets for equipment (totaled from each budget component) and laboratory renovations together may not exceed 50% of the entire budget total.	Required Budget Justification. 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. Note: Itemize equipment with a unit cost of \$10,000 or more.
Computers	
Definition. Laptop computers, personal 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.	Required Budget Justification. 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. Note: Itemize computers with a unit cost of \$10,000 or more.
Software Development	
Definition. Expenses incurred in grant-supported development of software. Includes	Required Budget Justification. Provide costs for the development of software. List the relevant

<p>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>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>Supplies</p>	
<p>Definition. 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>Required Budget Justification. List supplies by general category and give totals for each category for each of the four grant years.</p>
<p>Travel and Meetings</p>	
<p>Definition. 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. 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.</p>	<p>Required Budget Justification. 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>
<p>Other</p>	
<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.</p>	<p>Required Budget Justification. Briefly describe and provide the number and cost per participant or activity, as applicable, for each of the four grant years.</p>

4. Precollege and Other Outreach

Definition. Precollege and outreach programs that link science departments with elementary and secondary schools, community colleges, or other four-year institutions for the development of teachers

and students, and enrichment of laboratory courses and other initiatives to strengthen preparation of preservice science teachers.

Teacher Stipends/Salaries

Definition. 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.

Required Budget Justification. 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.

Student Stipends/Salaries

Definition. Payments to students by grantee institutions for participation in grant-related activities, such as summer research or special courses.

Required Budget Justification. Provide the number of and stipends/salaries for students from elementary and secondary schools, 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.

Faculty Salaries/Benefits

Definition. Payments by the grantee institution to faculty of the grantee institution for their grant-related activities. **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.**

Required Budget Justification. Provide the number of and salaries/benefits for faculty members to receive payment for precollege and outreach 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.

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

	<p>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>Living Expenses</p>	
<p>Definition. 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. 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.</p>	<p>Required Budget Justification. 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>Travel and Meetings</p>	
<p>Definition. 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. 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.</p>	<p>Required Budget Justification. 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 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>Equipment</p>	
<p>Definition. 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. Note: The budgets for equipment (totaled from each budget component) and laboratory renovations together may not exceed 50% of the total budget.</p>	<p>Required Budget Justification. 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. Note: Itemize equipment with a unit cost of \$10,000 or more.</p>

Supplies	
<p>Definition. 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>Required Budget Justification. List supplies by general category and give totals for each category for each of the four grant years.</p>
Other	
<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.</p>	<p>Required Budget Justification. Briefly describe and provide the number and cost per participant or activity, as applicable, for each of the four grant years.</p>

5. Program Administration	
<p>Definition. 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 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). Note: Program administration is limited to direct costs and may not exceed 10% of the budget total.</p>	
Salaries/Wages/Benefits	
<p>Definition. 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.) 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.</p>	<p>Required Budget Justification. 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 precollege and outreach 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>

Office Expenses	
Definition. Supplies and other office expenses (telephone, postage, etc.) and publishing costs relevant to the administration/assessment of an HHMI grant. Note: This item is to be reported only under Program Administration and Program Assessment.	Required Budget Justification. 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.
Other	
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.

6. Program Assessment and Dissemination

Definition. Programs that monitor the effectiveness of or demonstrate accountability to state or local science education policies; 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.

Salaries/Wages/Benefits

Definition. Payments and benefits made to permanent employees for work, or for completion of specific tasks related to assessment or 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.) **Note: When responsibilities relate to assessment or dissemination, salaries/wages/benefits must be reported under Program Assessment rather than with other grant-related activities.**

Required Budget Justification. Provide the number of employees with responsibility for grant program assessment or 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.

Office Expenses

Definition. Supplies and other office expenses (telephone, postage, etc.) and publishing costs

Required Budget Justification. Provide costs for supplies and other office expenses (e.g., telephone

<p>relevant to the administration/assessment/dissemination of an HHMI grant. This item is to be reported only under Program Administration and Program Assessment.</p>	<p>or postage) relevant to assessment or dissemination of the grant for each of the four grant years.</p>
<p>Professional Services</p>	
<p>Definition. Payments made to consultants and independent contractors for work or for completion of specific tasks related to assessment or 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>Required Budget Justification. 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 or dissemination for each of the four grant years.</p>
<p>Other</p>	
<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.</p>	<p>Required Budget Justification. Briefly describe and provide the number and cost per participant or activity, as applicable, for each of the four grant years.</p>

Appendix 1
 Templates for Reporting of Long Term Outcomes

Undergraduates																			
Degree in Progress or Last Degree Earned																			
Reporting Year	BS			MS			Science PhD			MD			MD-PhD			Nonscience PhD or Other Professional Degree			
	All	Women	URM*	All	Women	URM	All	Women	URM	All	Women	URM	All	Women	URM	All	Women	URM	
Total																			

*Underrepresented minorities.

Graduate Students and Postdocs												
Student or Fellow Info						Status During HHMI Support			Current Status			
Last Name	First Name	Date of Birth	Last 4 Digits of SSN	Race/Ethnicity	Gender	Reporting Year(s) Supported	Grad Student	Postdoc	Grad Student (Identify Institution)	Postdoc (Identify Institution)	Faculty Member (Identify Rank and Institution)	Other (Identify Position and Institution)