

MANAGING YOUR RESEARCH

**A Handbook for Principal Investigators,
Research Administrators, and Research Staff
in the Faculty of Arts and Sciences**

<http://www.fas.harvard.edu/~research/managing.html>

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Managing Your Research was written by the FAS Research Group (Dean Gallant, Alan Long, Paul Martin, and Sarah White), and comments, questions, and corrections should be addressed to them. Many individuals in the Faculty of Arts and Sciences and in the Office for Sponsored Programs took the time to review draft versions of the handbook and we are grateful for their suggestions and improvements.

The most current version of this manual is maintained online at
<http://www.fas.harvard.edu/~research/managing.html>

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Introduction

Nothing is more important to Harvard than the quality of its two central, interconnected missions, research and teaching. In some areas, seminal discoveries can still be made, and fundamental insights and concepts can still be conveyed, without recourse to libraries, laboratories, or other facilities. However, to an increasing degree, research and education require the cooperation of individuals with a broad range of expertise and the utilization of a wide variety of materials and equipment. Both Harvard and the government have developed policies and adopted rules to ensure that these activities are conducted with integrity and with due regard for the health, safety, and privacy of everyone concerned. To help pay for research involving students and associates and for experiments using sophisticated equipment, faculty members often must obtain external support through a formal agreement involving the sponsor, the Principal Investigator (PI), and the University. Funds must be allocated and spent appropriately. PIs (in the Faculty of Arts and Sciences, ordinarily faculty members), research administrators, and members of research groups will have to take many steps in concert with many FAS and University offices between the time they start looking for support for a project and the time they complete it. This handbook, *Managing Your Research*, contains practical hands-on information on all facets of this odyssey. It includes pointers to relevant policies and to other resources. Suggestions for improving its content and clarity are welcomed.

I. HOW IS RESEARCH SUPPORTED?

A. University Support and Gifts

The University contributes to research in many ways. It provides space; it pays faculty members for the effort they expend on research during the academic year; and it provides a preponderance of the funds for libraries and museums, various annual awards, and funds for start-up. Several departments also have funds designated for research.

Research is also supported by gifts (funds that donors give to investigators with few or no conditions). Gifts are processed by the Office of the Recording Secretary.

An award is **not a gift** but a **sponsored project** if the proposal for the award or the award agreement includes *any* of the following:

- a line-item budget for the expenditure of funds;
- a detailed statement of the planned activity or scope of work;
- any commitment to provide “deliverables” (e.g., products, or periodic technical or progress reports);
- any fiduciary commitments (financial reports, audits, and/or an obligation to return unexpended funds);
- any commitment to account for tangible or intangible property (equipment, data, technical reports, copyrightable or patentable materials).

All sponsored projects are administered through the Office for Sponsored Programs (OSP), and all proposals for sponsored projects must be submitted through that office.¹

In some cases, sponsors request preliminary letters of intent prior to proposal submission. The term “proposal” is understood to include such letters.

B. Types of Sponsored Projects

External sponsors, primarily governmental, provide a large fraction of research support, particularly in the natural sciences, where, in addition to offices, telephones, conference rooms, libraries, and computer and network facilities, specially built and equipped laboratories and facilities are often essential. Ordinarily, sponsors provide this support by funding project proposals conveyed by the University on behalf of a PI and any Co-Principal Investigators or Co-Investigators.² Awards are made to the President and Fellows of Harvard College (not to the PI), and the University accepts responsibility for assuring that each Principal Investigator will perform each project in accordance with all terms of the agreement, all University policies, and all applicable laws and regulations.

Sponsored projects that support research or other sponsored activities may be grants, contracts, or cooperative agreements.

Grants have fewer conditions than other sponsored projects. Sponsors award them to support research described by PIs in proposals submitted often, but not always, in response to solicitations. The proposal describes what the PI or team hopes to accomplish (the “project scope”) with the award and outlines a general course of inquiry. Within the scope specified in the formal grant agreement, the PI controls the direction of the inquiry process. Ordinarily, grants do not include commitments to provide specific products (“deliverables”). Not all grants are for research. Some provide support for **other sponsored activities**—a conference or symposium, editing a series of papers, maintaining a collection of scientific specimens, etc.

Cooperative Agreements are similar to grants, but typically involve a significant level of sponsor participation in the administration of the project.

Contracts are most often awarded on the basis of proposals submitted in response to requests from sponsors; these are sometimes referred to as RFPs (Requests for Proposals). A contract proposal typically includes commitments to provide the sponsor with data, analysis, devices, or other specified deliverables. Because contracts may include restrictive terms (frequently specified in the RFP) and because they require deliverables, PIs should alert OSP as soon as possible when contemplating the preparation of a contract proposal. Objections to terms must be identified at the proposal stage, and OSP will need time to prepare a letter that addresses exceptions to these terms well in advance of the submission.

¹ Further information about the distinction between gifts and grants can be found at http://vpf-web.harvard.edu/OSP/funding/fund_gr_toc.shtml.

² The Principal Investigator bears ultimate responsibility for directing a research endeavor. In the Faculty of Arts and Sciences, the right to serve as Principal Investigator on sponsored research projects is limited to members of the Faculty and a few others whose scholarly qualifications have been reviewed carefully. Further details on PI eligibility may be found in Section III.C.

II. CONDUCTING RESEARCH RESPONSIBLY

Trust in the integrity of Harvard research is one of the University's most valuable assets. All those associated with research owe it to their colleagues and coworkers to make sure that funds are expended properly, that research is conducted with due attention to ethical standards and applicable regulations, and that results are reported accurately and truthfully. In the case of externally-funded research, they also have legal and ethical obligations to the sponsors of their research and to the University in its administrative oversight role.

In particular, the University must certify to federal sponsors that its members, including administrative and research staff, understand the standards of professional conduct, and that it has established procedures to demonstrate that these standards are observed.³ The policies and procedures for the FAS are collected in *Principles and Policies that Govern your Research, Instruction, and Other Professional Activities* (also known as the “**Grey Book**”), which is distributed widely in hard copy⁴ and is available online at <http://www.fas.harvard.edu/~research/greybook>. All individuals in the FAS who conduct or support research should be familiar with the policies in the Grey Book that are relevant to their activities. PIs signal that they are aware of these policies by filing “Affirmations of Awareness” periodically; this may be accomplished online at <http://admin-apps.fas.harvard.edu/disclosure/index.html>.

A. Free Scholarship and Its Responsibilities

The right of investigators to choose the nature and direction of their research inquiries—and the understanding that they bear sole responsibility for their conclusions—are basic premises of free scholarship at the University. Individuals are appointed as members of the Faculty with the understanding that they are free to select the areas in which they will conduct research, subject to prevailing legal and ethical standards and appropriate use of University resources. Naturally, with freedom come responsibilities—to the University, to the intellectual community, and to the sponsors with whom agreements have been made to support their research at the University.

Sponsors of University-based research may not prohibit specific individuals or groups from participating in research on account of their beliefs or backgrounds.

Investigators must be free to share their research findings with the scientific and academic community. Secret or classified research may not be conducted at Harvard, and the University will not accept research that restricts investigators' ability to publish their results. This is particularly important for students and others at the early stages of their careers, where publication of research is crucial to recognition in the field.

³ See Section II.G.

⁴ Hard copies of the Grey Book may be obtained from Dean Gallant, Science Center 130, One Oxford Street (drg@fas.harvard.edu).

B. Confidentiality

While it is expected that research results will be published, care must be taken with three types of information gathered or developed during the course of research: (1) personal and private information about identifiable individuals—often an issue in clinical and social science research; (2) industry know-how, trade secrets, and proprietary information provided by sponsors—of concern in both Material Transfer Agreements (MTAs) and Industry Sponsored Research Agreements (ISRAs); and (3) business information such as office manuals and procedures—often an issue in service contracts.

Agreements to accept confidential information need not involve funding; for example, access to a data set may require signing a confidentiality agreement. In some cases it may be possible for an individual to accept confidential information that the University would not be able to accept. OSP Awards Management should approve any agreements involving the acceptance of confidential information by the University before they are signed. Key negotiation issues typically associated with the acceptance of confidential information include the following:

- can the PI conduct the research without compromise?
- will other scholars be able to verify and/or replicate the research results?
- will the PI and students involved with the project be free to publish their research results?
- are there any adverse financial implications for the University?

C. Publication

In addition to specifying information that must remain confidential, some sponsored agreements may contain a publication clause. The University will not accept any clause that gives the sponsor editorial control. On the other hand, a clause that gives the sponsor the opportunity to review any proposed publications to confirm that neither the sponsor's background confidential information nor the sponsor's proprietary information has been disclosed is acceptable (with certain limitations). Agreement to delay publication briefly so that patent protection of an invention may be sought is also permissible. Specific, appropriate protections and guidelines have been developed for these areas.⁵

Experience has shown that satisfactory arrangements regarding confidentiality and publication delay can usually be negotiated, but PIs should be alert to the issues and remember the principal reasons for the University's policies: to make certain that the exchange of information is not inhibited and that the ability to publish and communicate freely—for students as well as faculty—is protected.

⁵ Guidelines regarding confidential or proprietary information can be found at <http://www.fas.harvard.edu/~research/greybook/industry.html> and <http://www.fas.harvard.edu/~research/greybook/not-access.html>. Individuals' private information must be handled according to the guidelines for the use of human subjects in research—see <http://www.fas.harvard.edu/~research/humsub.html>.

D. Inventions, Intellectual Property, Copyright, and OTTL

Intellectual property includes patents, copyright, trademarks, and technical know-how. The creators or owners of intellectual property are legally entitled to protect their property from unauthorized use. Harvard's Office for Technology and Trademark Licensing (OTTL)⁶ has primary responsibility for assisting faculty with obtaining patents and finding the appropriate venue to market their ideas. OTTL also negotiates Material Transfer Agreements (MTAs) on behalf of the FAS, to facilitate the exchange of biological and other materials with investigators at other institutions. Working with the FAS and OSP, OTTL plays a key role in negotiating intellectual property rights in Industry Sponsored Research Agreements (ISRAs).

1. Patents

Inventions or discoveries that could have commercial value should be reported to OTTL⁷, the office responsible for evaluating whether the University should seek a patent or patents. Patentable items include: new and useful processes, products, or materials; new and useful improvements of, or original and ornamental designs for, manufactured articles; and even distinctive new plant varieties.⁸

Cited below, to help PIs and others know when to seek advice, is an excerpt from the OTTL web site, outlining criteria for patentability. The OTTL licensing staff are available to assist in determining whether a potential invention meets these qualifications. In order to be eligible for patent protection, United States patent law requires that an invention be:

- *New or Novel.* The invention must be demonstrably different from publicly available ideas, inventions, or products (so-called "prior art"). This does not mean that every aspect of an invention must be novel. For example, new uses of known processes, machines, compositions of matter, and materials are patentable. Incremental improvements on known processes may also be patentable.
- *Useful.* The invention must have some application or utility or be an improvement over existing products and/or techniques.
- *Non-Obvious.* The invention cannot be obvious to a person of "ordinary skill" in the field; non-obviousness usually is demonstrated by showing that practicing the invention yields surprising, unexpected results.

For more information on the basics of patent law, see the Patents section in the OTTL "Intellectual Property Overview."⁹

2. Copyrights¹⁰

As explained in more detail on the OTTL website¹¹, copyright is a narrow, specific form of intellectual property protection that protects only the fixed embodiment of an idea, not the idea itself. A copyrightable work must be an original work, set down in a tangible or fixed form.

⁶ <http://www.techtransfer.harvard.edu/>

⁷ <http://www.techtransfer.harvard.edu/ROIForm.html>

⁸ <http://www.uspto.gov/web/offices/pac/doc/general/#patent>

⁹ http://www.techtransfer.harvard.edu/IntellectualProperty.php?IP_branch=IP-Patents.html

¹⁰ <http://www.copyright.gov/circs/circ1.html#wci>

¹¹ http://www.techtransfer.harvard.edu/IntellectualProperty.php?IP_branch=IP-Copyrights

Copyrightable works include traditional written works and other forms such as videotapes, film, music, and paintings.

Computer software can also be protected through copyright. The courts have ruled that such protection extends to the literal sequence of instructions; the structure, sequence and organization of the instructions; instruction sets and command languages; and, to some extent, the “look and feel” of a user interface.

Copyright protection gives authors five exclusive rights:

- the right to reproduce the work
- the right to prepare derivative works based on the original
- the right to distribute copies to the public
- the right to perform the work publicly
- the right to display the work publicly

3. Copyright Notices

Although copyright notices on works first published after March 1, 1989 are optional, the University recommends strongly that authors include a notice of copyright on all works intended for publication. The notice should include the author's or copyright owner's name, the year in which the work is first published, and either the © symbol or the word “copyright.” Variations of proper copyright notices, in order of preference, include:

- © 2004 John Doe. All Rights Reserved.
- Copyright 2004 John Doe. All Rights Reserved.
- Copr. 2004 John Doe. All Rights Reserved.

For works owned by the University, the words “President and Fellows of Harvard College” should be substituted for the author's name (for example: © 2004 President and Fellows of Harvard College. All Rights Reserved).

The year given in the copyright notice should not be changed each time the work is printed or published unless significant amounts of new original material are added. In that case, both the date of the revision and the original date should be cited.

Concerning copyright notices for computer program code: the lack of an ASCII character for the “©” symbol may cause certain foreign countries to deny recognition of the notice. Use of a “(c)” symbol may be sufficient in such cases, if care is taken to label the media containing the software—as well as any documentation—with the conventional “©” notation.

4. Harvard University Participation Agreement

All faculty and research staff—including graduate and undergraduate students—must complete a Participation Agreement before undertaking sponsored research. By signing this form, a researcher agrees to abide by the University’s *Statement of Policy in Regard to Inventions, Patents, and Copyrights*.¹²

¹² See <http://www.techtransfer.harvard.edu/PatentPolicy.html>.

This policy ensures compliance with relevant University and federal rules, including the obligation to report promptly any new inventions or discoveries and to assign ownership to the University as required by the terms of the sponsored research agreement. A signed Participation Agreement allows the University, at its expense, to pursue patent prosecution on behalf of the PI and/or researcher, and signals the concurrence of the researcher with the terms of the University's *Royalty Sharing Policy*.¹³

The Participation Agreement form is available from OTTL.¹⁴ PIs should distribute this form to new members of their research teams; completed forms are kept on file at the Office for Sponsored Programs.

E. Conflicts of Interest and Commitment

FAS policies on conflicts of interest and commitment stipulate that full-time faculty and staff owe their primary professional allegiance to the University. Outside activities and obligations must be arranged in ways that respect this relationship and that do not interfere with individuals' University responsibilities.

Two areas of potential concern are **conflicts of interest**—situations in which an individual's University activities might be, or might appear to be, influenced by considerations of personal gain (financial or otherwise); and **conflicts of commitment**—situations in which an individual's outside activities (consulting, public service, or *pro bono* efforts) may interfere or appear to interfere with the quality or performance of University duties. Both types of conflict can affect University-based research and both are addressed by University and sponsor guidelines.¹⁵

F. Research Integrity

The University has established policies and procedures¹⁶ and created structures to foster a proper research environment, to support and monitor research activities, and to deal effectively with misconduct or allegations of misconduct in research. These structures include various committees: the Committee on Research Policy, the Committee on Professional Conduct¹⁷, the Committee on the Use of Human Subjects¹⁸, and the Committee on the Use of

¹³ See <http://www.techtransfer.harvard.edu/RoyaltySharing.html>.

¹⁴ See <http://www.techtransfer.harvard.edu/files/ParticipationAgreement.pdf>.

¹⁵ Policies on conflict of interest and conflict of commitment can be found in the Grey Book at <http://www.fas.harvard.edu/~research/greybook/policies.html>. A Standing Committee of the Faculty administers these policies. Applicants for support from NSF or from one of the agencies of the Public Health Service (NIH, NIMH, etc.) must also comply with federal rules on conflict of interest. See <http://www.fas.harvard.edu/~research/greybook/COI.insts.html>.

¹⁶ See the Grey Book, *Principles and Policies that Govern Your Research, Instruction, and Other Professional Activities*, at <http://www.fas.harvard.edu/~research/greybook/index.html>.

¹⁷ The Committee on Professional Conduct has broad representation from the different disciplines. This committee advises the Dean and individual faculty members on problems involving conflicts of interest and commitment and handles allegations of research misconduct. The Office of Science and Technology Policy issued a federal-wide policy on research misconduct in December of 2002, defining research misconduct as “fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.” See http://www.ostp.gov/html/001207_3.html. Some agencies have made minor changes to the OSTP language as they

Animals in Research and Teaching.¹⁹ The responsibilities of everyone associated with the research enterprise include an obligation to report questionable administrative or academic practices and/or policy deviations to the appropriate University official(s).²⁰

Many agencies have offices to oversee and audit the propriety of the research activities that they sponsor.²¹ Additionally, specialized boards of accreditation oversee procedures and practices in some areas.

G. Regulatory oversight

In addition to the areas in which the University established policies before external federal oversight intensified, there are numerous areas in which University policies and procedures have been established to conform to federal regulations overseen by various government agencies. These areas include: biohazardous materials (including various controlled substances, pharmaceuticals, hypodermic needles, and recombinant DNA);²² radioactive materials;²³ shipping of hazardous materials,²⁴ hazardous waste;²⁵ and export of information and goods.²⁶

The expenditure of sponsored (and particularly federally-sponsored) funds is closely regulated and monitored. Each institution that has federal sponsored research in excess of \$500,000 annually is subject to federal audit. The federal agency assigned to audit responsibility depends upon the composition of that institution's federal funding portfolio. Because Harvard's largest sponsor is the NIH, the Department of Health and Human Services (DHHS) is the University's *cognizant agency*. The cognizant agency also has responsibility for the negotiation of fringe benefit and overhead rates, through its rate-negotiation arm, the Division of Cost Allocation (DCA). These responsibilities are managed in accordance with three *circulars* (documents containing directives for educational and other non-profit institutions) issued by the Office of Management and Budget (OMB).²⁷ Recent high-profile cases

implement it through regulation, and DHHS has yet to adopt the federal-wide definition (see http://ori.dhhs.gov/html/misconduct/regulation_subpart_a.asp for current DHHS policy). All agencies acknowledge that research misconduct should be distinguished from honest error or honest differences of opinion.

¹⁸ <http://www.fas.harvard.edu/~research/HumSub.html>

¹⁹ <http://www.fas.harvard.edu/~research/greybook/animals.html>

²⁰ See <http://www.fas.harvard.edu/~research/greybook/misconduct.html>

²¹ Some of these include the Public Health Service [Office of Research Integrity](#), the DHHS [Office for Human Research Protections](#), the NIH [Office of Management Assessment](#), the DHHS [Office of Inspector General](#); the NIH [Office of Laboratory Animal Welfare](#); the FDA [Office of Regulatory Affairs](#); and the NSF [Office of Inspector General](#).

²² See Section V.B.5.

²³ See <http://www.uos.harvard.edu/ehs/rad.shtml>.

²⁴ Call Michael Labosky in Environmental Health and Safety at 6-0724 for more information.

²⁵ See http://www.uos.harvard.edu/ehs/env_pro_haz.shtml.

²⁶ Government regulations in this area are complex. Consult Ellen Berkman (6-1108) in the Office of the General Counsel with any questions.

²⁷ Circular A-110, *Uniform Administrative Requirements for Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations* (<http://www.whitehouse.gov/omb/circulars/a110/a110.html>), covers various requirements for the administration of federal grants and cooperative agreements (but not contracts).

involving unauthorized expenditures or questionable accounting practices at some major research universities have led to increased requirements to document that the University is monitoring and enforcing proper stewardship of the funds that taxpayers provide for research.

Circular A-21, *Cost Principles for Educational Institutions*

(<http://www.whitehouse.gov/omb/circulars/a021/a021.html>), lays out regulations governing the various types of costs that may be charged to federal grants, contracts, and cooperative agreements.

Circular A-133, *Audits of States, Local Governments, and Other Non-profit Organizations*

(<http://www.whitehouse.gov/omb/circulars/a133/a133.html>) provides the framework for annual audits of the University's management of its sponsored programs, conducted on the government's behalf by PricewaterhouseCoopers, a commercial auditing firm.

In addition, the University is required by OMB's Cost Accounting Standards Board to file a Disclosure Statement (DS-2) describing its cost-accounting practices. The DS-2 is audited and approved by the DHHS-DCA.

Finally, there are four federal cost-accounting standards that are now applicable to educational institutions. These standards, which mandate consistency in estimation, accumulation, reporting, allocation, etc., of costs, as well as in the treatment of unallowable costs, have been incorporated into Circular A-21.

III. OBTAINING SPONSORED FUNDING

A. Finding Sources of Funding

Colleagues, mentors, and department chairs are the most valuable source of information and advice about external research support. There is no substitute for the collective wisdom and experience they have accumulated over the years in pursuing research support, successfully or otherwise, from various sponsors and institutions.

Since the development of relationships with funding agencies and the submission of successful proposals can take some time, the Dean often agrees to provide “start-up” funds to faculty who are initiating research at Harvard. University funds (the Milton Fund, Clark and Cooke Funds, the Tozier Fund, and some targeted departmental restricted funds) can also provide modest support for certain research or instructional activities.²⁸ The Provost’s Office also has funds available, particularly for initiatives that involve participants from more than one Harvard school.

The University subscribes to several online databases of funding information and investigators can use these resources without charge. Some services also allow PIs to specify their areas of interest and to request that email notifications be sent when relevant new funding opportunities appear. See http://vpf-web.harvard.edu/OSP/funding/fund_funding.shtml. The federal grant-making agencies have now made all grant opportunities available online at <http://grants.gov>. PIs and others may use the system to be notified by email of new announcements matching their research interests.

B. Restricted and Invitational Funding Opportunities

For certain awards, some sponsors only accept institutional nominations and/or limit the number of applications that an institution may submit. When the number of applicants and/or nominees is limited, and investigators from more than one school qualify, the Provost’s office coordinates the selection process, attempting to make sure that candidates across the University are treated equitably. *Ad hoc* committees are appointed to review applications and assist in the selection of Harvard’s nominee(s). In such cases, to allow adequate time for a review and selection of final candidates, internal deadlines must be set well in advance of official sponsor deadlines.

In the life sciences, where these restricted opportunities are numerous and recur annually, the University Committee on Biological Sciences (UCBS) coordinates Harvard’s submission process. UCBS faculty representatives from the FAS, the Medical School, and the School of Public Health meet annually to select Harvard’s nominees for several restricted programs. Some of these grants or fellowships span multiple years and may be worth several hundred thousand dollars. Since the committee meets only once a year, in the early summer, the lead time before the actual sponsor deadline can be significant, and department chairs and potential candidates should note carefully which opportunities are on the Committee’s list. Further

²⁸ Information about Harvard funding for faculty research can be found at <http://www.fas.harvard.edu/~finance/facultyfunding.html>.

information about the UCBS and the internal selection process can be found at <http://www.fas.harvard.edu/~research/ucbs>.

C. The Role of Principal Investigator

The primary means for ensuring the quality of research in FAS is through the rigorous academic standards applied in selecting members of the Faculty. (Only a few individuals who are not teaching members of the Faculty, after thorough review of their scholarly qualifications, are accorded the right to serve as Principal Investigator (PI) and to seek external research support on a continuing basis.) A few exceptions to this policy, for a few programs restricted to individuals in early stages of their career, are listed explicitly below.

For each sponsored award, it is customary to designate as PI *one* person who bears ultimate responsibility for academic decisions as well as for financial, administrative, and compliance matters relating to the project. Other individuals with significant involvement may be listed as “Co-Investigator” (if not PI-eligible) or “Co-Principal Investigator” (if PI-eligible).²⁹

1. PI Eligibility

Principal Investigator eligibility, on a continuing basis, for research projects and scholarly conferences is limited to:

- Professors (including Emeriti)
- Associate Professors
- Assistant Professors
- Research Professors
- Professors of the Practice
- Senior Lecturers
- Senior Research Fellows (with certain restrictions)³⁰

Others who are eligible to serve as Principal Investigators for specific other types of sponsored projects include:

- Directors, Executive Directors, Associate Directors, and Assistant Directors in FAS Affiliates — on grants for general operations, permanent endowment, physical plant, administrative projects, and outreach and continuing education programs for the general public.
- Curators — on projects relating directly to museum and botanical collections, e.g., conservation or exhibition of collections.
- Senior librarians and curators, with the approval of the Harvard College Librarian and the oversight of the Committee on Research Policy — on projects directly related to defraying the costs of caring for collections.
- Directors of specialized non-degree instructional programs in Continuing Education such as the Dance Program — on grants for the support of their programs.

²⁹ In addition, individuals appointed as Research Associates may be listed as Co-Principal Investigator on proposals that have a PI-eligible faculty member as Principal Investigator.

³⁰ For Senior Research Fellows, PI status is limited to the area of expertise specified in that individual's letter of appointment.

- Directors of Centers — on equipment/fabrication grants and conference projects related directly to the mission of the center.

In certain circumstances, other individuals may serve as PI.³¹ These include:

- Junior Fellows in the Society of Fellows, with the approval of the Chairman of the Society of Fellows;
- Research Fellows in certain Centers designated by the Dean in Grey Book category VI, in accordance with the conditions described in the Grey Book;³²
- Graduate students, on NSF Doctoral Dissertation Research Incentive Grants (DDIGs) that require that they be listed as Co-Principal Investigators;
- The holders of a small number of special fellowships, each approved on a case-by-case basis (such as the NIH Scientist Development Awards–K Series and the NSF ADVANCE Fellowship for women) awarded by sponsors who require that these fellows be given PI status.
- Individuals holding compensated research appointments may serve as PI if (1) they are within five years of the receipt of their Ph.D.; (2) they are applying to a program that limits the eligibility of Principal Investigators to “new investigators” or others who are not currently or who have not served in this capacity on other sponsored projects, and who are in the initial stages of their careers; (3) they have the formal endorsement of the department or center in which the project will be housed, including an explanation of the manner in which the project will be accommodated without incremental resources; and (4) they have formal acceptance of oversight responsibility by an Assistant, Associate, or Full Professor in the Faculty of Arts and Sciences.

2. PI Status for Non-Harvard Faculty

PIs assume responsibilities for which the University is liable. The University cannot delegate those responsibilities to individuals over whom it has little or no authority. Exceptions are made only if sponsors stipulate that individuals without Harvard PI rights be designated as PIs. For instance, the NSF GOALI (Grant Opportunities for Academic Liaison with Industry) program requires that the Co-PI from industry be listed as a PI on the project. In all such cases, the University retains a distinction between PI status insofar as the agency is concerned and PI status from its own viewpoint. In addition to making this distinction, the FAS requires that any individual who has agency PI status acknowledge his/her responsibilities by submitting the following document:

³¹ Approval of the Committee on Research Policy or its designee is required in each of these cases.

³² See <http://www.fas.harvard.edu/~research/greybook/resappts.html>. Currently such appointments may only be made in the Center for Genomics Research and the Rowland Institute.

<p>To Whom It May Concern:</p> <p>I acknowledge that I am identified by name as a Principal Investigator on the proposal entitled “_____” that has been submitted by Harvard Principal Investigator _____ to the [Agency, program number]. If this proposal is funded, I understand that I will be bound by all of the University’s and Faculty of Arts and Sciences’ rules (ethical, programmatic, and fiduciary) for the responsible conduct of research and by all of the commitments made for me in the proposal. Should any issue arise that interferes with my conforming to Harvard’s rules or with my commitments, I agree to bring them promptly to the attention of the appropriate Harvard University officials.</p> <p>Signature _____</p> <p>Title _____</p> <p>Institution _____</p>
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Letters of intent or proposals that would accord Co-PI status to non-Harvard faculty must be approved by the Chair of the Committee on Research Policy or by the Dean of the Faculty.

D. Sponsored Proposals

1. Types of Proposals

Proposals are requests to sponsors for funding to support a wide variety of academic pursuits. Classification of proposals into one of the categories outlined below is requested on the Dean’s Cover Sheet:

- **Research** proposals are the most common type of proposal submitted by FAS investigators. They may be submitted by an individual PI or by groups of PIs and Co-PIs. Research proposals are usually submitted for a three-year period, although time spans from one year to five years are possible. They ordinarily include direct and indirect costs.³³ Proposals for the support of individual undergraduate and graduate students (formerly classified as “instruction and training” and including grants to support graduate student dissertations) are also included in this category.
- **Fellowship** proposals are typically for stipend support for postdoctoral fellows. The postdoctoral fellow’s faculty sponsor serves as the PI on the grant, unless the sponsor’s policy requires otherwise. [See Section III.C.1]
- **Financial aid** proposals are for programs that support undergraduate and graduate students, e.g., Title IX programs including the Federal Loan Programs and the College Work Study Program, as well as a variety of programs that provide tuition and stipend support for pre-doctoral students.
- **Other Sponsored Activity** proposals support activities other than research or instruction and training. Examples include travel; publication or printing; preservation, maintenance,

³³ The federally-negotiated facilities and administrative “research” rate is applied to research proposals submitted to federal agencies or to industrial sponsors. Proposals to foundations and to other non-profit sponsors must be at the maximum facilities and administrative rate allowed by the sponsor’s policy. [See Section IV.C.1]

and/or cataloging of collections, archives, equipment, or facilities; conferences and symposia; administration; public presentations; demonstration; acquisition of equipment; facilities construction; work pertaining to library collections, acquisitions, bibliographies, or cataloging; and work pertaining to social and/or community service, or health service and/or promotion.

2. Proposal Status

This information is needed by the sponsor and by OSP for recordkeeping and tracking purposes. The six statuses are:

- **New proposals:** original requests for funding from an agency, for projects that have not been funded by that sponsor previously.
- **Renewal proposals:** requests for continued funding for existing sponsored projects, beyond the term of the current award. Renewal proposals (unlike Supplements, described below) typically ask for funding at annual levels similar to those requested in the original proposal. The NIH uses the term “Competing Continuation” instead of “Renewal.”
- **Continuation proposals:** requests for additional funding for existing NIH projects. A “Competing Continuation” is the NIH term for a “Renewal” (see above), and a “Non-competing Continuation,” or “Progress Report,” is an NIH-specific submission that summarizes accomplishments during the current grant period and requests funding for the next year.
- **Supplements:** requests for additional funds for an existing sponsored project, typically for a particular item of equipment or subproject not anticipated in the original proposal. Supplemental funding requests are usually smaller than the original requests, and usually for a shorter term. Supplements only rarely extend the period of performance.
- **Revisions:** requests for significant changes to a project, either a major change in the budget, or a change in the scope of work, or both. Minor budget changes do not require separate approval. More significant changes can often be made without permission from the sponsor, under the “expanded authorities” granted to Harvard by certain federal agencies.³⁴ Changes in the scope of work ordinarily require sponsor approval.
- **No-cost extensions:** requests to extend the period of performance of an award without additional money from the sponsor. Many no-cost extensions can be approved locally under the “expanded authorities” granted to Harvard by certain federal agencies, but others require sponsor approval.

3. Components of a Proposal

Most sponsors provide guidelines that specify the form and content of the proposal. Careful attention to these guidelines is essential, because lack of conformity may cause the proposal to be returned without review.

In addition to the technical description of the work to be performed, many sponsors (particularly federal agencies) require completion of specific forms. Required forms are

³⁴ See Section VII.C.

available on the Web at individual agency sites: [AFOSP](#), [ARO](#), [NIH](#), [NSF](#), and [ONR](#). Many forms can also be found at [TRAM](#).³⁵ Typical proposal components include:

- **Cover sheet**

Sponsors usually request that applicants complete forms that provide basic administrative information, including project title; project period (start and end date); funds requested; PI and/or Co-PI name, title, address, phone, fax, e-mail; and administrative contact information (the Office for Sponsored Programs). Basic cover sheet information³⁶ also includes the University's corporate and legal name (President and Fellows of Harvard College) as well as the University's tax-exempt status number (042103580N).
- **Representations and Certifications**

All federal grant and contract applications require that an authorized University signatory sign a series of Representations and Certifications attesting to the institution's eligibility to receive and administer federal funds. The three most common types of Representations and Certifications are Debt and Debarment, Lobbying, and Drug-Free Work Place. Other types of Representations and Certifications vary by agency. Most federal sponsors require that these forms be submitted with the application, but some do not require them until the time of award. Only two sets of these forms are required for each proposal, one for the sponsor and a duplicate for OSP files.
- **Abstract**

Also referred to as a "project summary," this section provides a brief (typically no more than one page) high-level description of the goals of the proposed research. If the sponsor has specific requirements for the project summary, they should be followed carefully. NSF, for example, requires that the project summary explicitly address the "intellectual merit" and the "broader impact" of the proposed research and will return without review proposals that do not include this information.
- **Narrative**

This is the scientific/technical description of the project. Many sponsors have strict guidelines regarding page length and formatting (margins, lines per inch, font size, etc.) and may reject proposals that do not meet these guidelines, so it is essential to review the program announcement carefully and to adhere to the sponsor's guidelines.
- **Budget and Budget Justification**

Most research proposals, and many fellowship proposals, ask for a detailed ("line-item") budget and explanation of the items in each budget category. Information about budget preparation can be found in Chapter IV.
- **Curriculum Vitae and Bibliography**

Literally the "course of life," the CV is sometimes referred to as a résumé or biographical sketch. Normally, the CV is accompanied by a bibliography, a list of the person's

³⁵ TRAM (<http://tram.east.asu.edu/>) is a service initially developed by the Texas Research Administrators Group. This a service site was designed to meet the needs of researchers and research administrators at institutions of higher education.

AFOSP: <http://www.afOSP.af.mil>
ARO: <http://www.aro.army.mil/>
NIH: <http://grants1.nih.gov/grants/funding/phs398/phs398.html>
NSF: <http://fastlane.nsf.gov>
ONR: <http://www.onr.navy.mil/02/default.htm>

³⁶ Cover sheet information is available at http://vpf-web.harvard.edu/OSP/proposal/prop_pr_sheet.shtml.

publications. CVs of the PI and other faculty members who will be working on a project should be included with the proposal. Many sponsors have specific formatting and page-length restrictions. Most federal sponsors require a shortened CV and bibliography, between two (NSF) and three (NIH) pages.

Typically, the CV/bibliographies of others playing a *significant* role in the project are included, whether or not they are Co-PIs or Co-Is, and even if they are not otherwise affiliated with Harvard.

- **Current and Pending Support**

Many sponsors request that applicants provide summaries of their current and anticipated grant and contract funding. Information requested usually includes sponsor, project title, period of performance, and amount funded. Some agencies also ask for percentages of effort. To avoid cost-sharing implications, the amount of effort committed to projects should not be reported unless it is requested explicitly. (See Section V.B.8).

IV. BUDGET POLICY AND BUDGET PREPARATION

A. The Costs of Conducting Research

The University depends heavily on gifts, grants, and contracts from the government, industry, and foundations to provide much of the support above and beyond academic-year faculty salaries and real estate to support the extensive research enterprise. Many of these research expenses—salaries and fringe benefits of researchers, travel, equipment, etc.—appear as **direct charges** (specific line items in the budgets of sponsored projects). Sponsors pay a fraction³⁷ of other equally essential costs that are less readily allocable to specific individual projects—the cost for administrative support, the operation and maintenance of space, libraries, etc.—as a percentage of direct costs. These Facilities and Administrative (F&A) costs, also called **indirect costs** or overhead, are carefully audited by the federal government and are charged, without exception, to federal and industrial sponsors.³⁸

B. Budget Preparation

In the FAS, administrators usually prepare budgets, though the exact role that an administrator plays in the preparation of the budget may vary. Typically, the PI provides a list of personnel and equipment needs as well as the total estimated cost. From this list, the administrator (or the PI) fills in the salaries, fringe benefit costs, and non-personnel items, and calculates the indirect costs to arrive at the total project budget.

Direct Costs

Direct costs are directly identifiable project expenses. Major categories include:

- Personnel
- Equipment
- Travel
- Subcontracts and subawards
- Participant support costs
- Other direct costs

1. Personnel expenses (salaries and fringe benefits)

Salary requests must be based on the level of payment for current or anticipated appointments and may not exceed the rate the University is paying. For budgeting purposes a standard 3% increase per fiscal year (July 1st through June 30th) for each salary category should be used, based on an average of historical University salary increases. Some federal agencies limit the increase to a published index, such as the Consumer Price Index.

³⁷ The large and growing costs of federally-mandated administrative oversight of finances, safety and security, protection of human subjects, etc., exceed the federal limit (the “administrative cap”) on reimbursement for such expenses.

³⁸ Private foundations and other non-profits are expected to reimburse the University for indirect costs as well, to the maximum extent allowed by their own policies. See Section IV.C.1.

Notes on specific salary categories:

- ***Principal Investigators—Academic-Year and Summer Salary***

FAS faculty PIs ordinarily do not charge academic-year salaries to sponsored funds, unless they are on a sabbatical or research leave. During the three summer months (between Commencement and the start of classes—effectively, June, July, and August), faculty may request salary from their grants, but that salary cannot total more than 3/9 of their academic-year salary and can be paid only for time they are working on the project(s).

Sometimes summer salary requests are put into several proposals to ensure that adequate funding will be available. As a result, it is possible that a PI may be awarded grants that include a total of more than three months of salary in a single summer. Since summer compensation may not exceed three months' salary in a single year, but effort commitments in approved grant proposals must be honored, PIs may be required to use the excess budgeted summer salary as term-time compensation.

Summer salary paid by the NSF, whether from single or multiple awards, cannot exceed 2/9 of academic year salary. Alone among federal agencies, the NIH has a salary cap and will not pay the portion of salary that exceeds the cap. The current NIH salary cap (effective March 3, 2004) is \$175,700 on a 12-month basis, or \$14,642/mo. If a PI's University salary exceeds that amount, this fact should be noted in the budget justification but the salary requested should be at the cap level. A summary of salary cap levels over the past several years is at http://grants.nih.gov/grants/policy/salcap_summary.htm; examples of salary cap application are at <http://grants1.nih.gov/grants/guide/notice-files/NOT-OD-04-025.html> (note that examples on this website may not reflect the most recent increase to the cap).

Note on Extra Compensation: Under certain rare circumstances, faculty may submit a request to a sponsor for extra compensation—that is, compensation in addition to base-year salary. Such fees may not ordinarily be charged for intra-university consulting or collaboration, which is understood to be part of the faculty member's University obligation. The principle also applies to a faculty member who functions as a consultant or otherwise contributes to another FAS sponsored agreement.

However, in rare cases where consultation is across departmental lines or involves a separate or remote operation, *and* the work performed by the consultant is of an unusual nature and is in addition to his or her regular University activities, it may be possible to request extra compensation. Approval by the relevant Dean or Deans for faculty extra compensation must be obtained **prior** to proposal submission, in accord with the policy voted by the Corporation.³⁹ Please note that if budgets are submitted and approved by the sponsor without prior internal approval, these charges will not be allowable; submission of a proposal with a line item for extra compensation does not signify University approval.⁴⁰

³⁹ See <http://www.fas.harvard.edu/~research/greybook/extracomp.html> .

⁴⁰ In accord with OMB A-21 Section J.8: "*Compensation for personal services....* Incidental work (that in excess of normal for the individual), for which supplemental compensation is paid by an institution under institutional policy, [may be paid] provided such work and compensation are separately identified and documented in the financial management of the institution." *Pensionable* extra compensation (object code 6190, for work and/or services performed) is distinct from *non-pensionable* extra compensation (object code 6200, for an honorarium or other type of bonus). Fringe rates for extra compensation (object code 6361) are 15% (pensionable) and 8% (non-pensionable). Because extra compensation is for work incidental to an individual's normal employment, such charges do not appear on effort reports.

- ***Other Senior Personnel***

Occasionally, Senior Scientists and non-faculty are hired to perform specialized research functions. These individuals are paid on the Exempt Staff payroll. Descriptions of their functions should be provided in the budget justification.

- ***Postdoctoral Fellows***

Postdoctoral Fellows (PDFs) are supported by a wide variety of grants and fellowships. Often, the source of funding for a postdoctoral fellow determines whether the individual is considered to be an employee of the University or a stipend recipient of the sponsor.⁴¹ The University recently conducted a comprehensive review of postdoctoral funding sources and benefits to ensure (to the maximum extent possible) that postdoctoral fellows *paid through the University* receive similar benefits, regardless of their source of funding. As a result of this review, postdoctoral fellows supported by individual fellowships (such as the federal NIH NRSA program or the non-federal American Cancer Society) now receive similar benefits to those of “employee” postdoctoral fellows supported on faculty research grants.

Object Code	Category	Fringe Code	Fringe rate FY 06 ⁴²
6150	“Employee” Postdoctoral Fellow	6260	23.2%
In the FAS, individuals may hold this status for three years, except in certain biological science departments, where the appointment may be extended for an additional two years.			
6050	Research Associate	6270	33.4%
Postdoctoral fellows who have exceeded the three-year (five-year in certain biological science departments) time limit must be reappointed as Research Associates. These individuals receive the same benefits as exempt staff, including pension benefits, reflecting their longer service to the University. Be sure to budget accordingly, as there is a substantial difference between the fringe benefit rates for Postdocs and Research Associates.			
6450	“Stipendee” Postdoctoral Fellow	6261	\$3,888 ⁴³ (flat rate)
Postdoctoral fellows working for PIs in science departments (Chemistry and Chemical Biology, Molecular and Cellular Biology, Organismic and Evolutionary Biology, and Psychology) who are supported through individually-awarded Postdoctoral Fellowships. Some fellowships can pay 100% of the \$3,888 rate. For those that cannot, PIs and departments should be aware of the need to budget from other sources to pay some or all of the flat rate fringe benefit charge in the event an award is made.			
6452	“Stipendee” Postdoctoral Fellow	None	None
Postdoctoral fellows in the non-life-science departments who receive stipends through Harvard’s payroll system from external sources but who are not employees are not eligible for benefits. No fringe is assessed on their stipends.			

⁴¹ For additional information on object codes and fringe benefit rates for Postdocs and Visiting Scholars, see Research Appointment Guidelines at <http://www.fas.harvard.edu/~research/resapptguide.html>.

⁴² Current rates and estimated future rates are at <http://www.fas.harvard.edu/~research/cvrsht.html>.

⁴³ \$3,888 is a flat rate for FY06. Departments provide accounts to be charged at the time of appointment. In some cases, the fellowship provides funds or an institutional allowance that may be used to cover or partially cover these expenses. The NIH/NRSA Institutional Allowance may be used for health and dental premiums, but not for other benefits, up to a maximum of \$3,186 for FY 06. The PI/Department must provide the difference.

Note on Salary Supplementation: Most “Stipendee” PDFs in the life sciences (Object Code 6450) are supported by NIH grants, and the University applies NIH rules to all PDFs in this category. In particular, the benefits package provided these fellows conforms to the NIH requirement that, while additional compensation may not be provided on an individual basis, consistent supplementation of all individuals in a status, whether federally- or non-federally-supported, is permissible.

Note on Simultaneous Employment Exceeding 100% Effort: Sometimes PDFs may be invited to serve as Teaching Assistants (TAs) or to work part-time as Research Assistants (RAs) on other projects. The policies of the University and of many federal agencies permit PDFs to engage in part-time University employment coincidental to their training program provided that this employment does not interfere with, detract from, or prolong their obligations as Fellows. Indeed, several sponsors encourage giving PDFs teaching experience as part of their training. Compensation for assistance on a research project separate from the fellowship obligations of the PDF, if allowed by the sponsor of the full-time fellowship, may be charged to that distinct project. Of course, any such payment must conform to Harvard's normal employment policies and procedures and accord with the sponsor's policies. Combinations of research appointments may not exceed the equivalent of 1.25 FTE.

Whenever postdoctoral fellows receive compensation in excess of 1.0 FTE, their appointments must have the approval of their supervisors/mentors. In the case of full-time “stipendee” PDFs, the judgment that the arrangement will not detract from or prolong the approved training program must also be confirmed with the fellowship sponsor. Based on the stated policy of the NSF, and a history of NIH approvals in individual cases, the FAS will ordinarily assume approval from these agencies, in the absence of more stringent guidelines from particular sponsors. Stipendees will be paid using supplementary PDF appointments and employee PDFs using extra compensation for service, as RAs or TAs, provided that no position is for more than 1.0 FTE and the sum of all positions does not exceed 1.25 FTE.

Simultaneous appointments as a PDF and in another role that add up to more than 1.25 FTE will only be permitted in extraordinary circumstances. Likewise, appointments in a combination of “non-trainee” appointment ranks (ranks that carry retirement benefits) may not ordinarily exceed 1.0 FTE.

- ***Other Professionals***
Technicians, Programmers, Laboratory Assistants, etc.: these employees may be either unionized or non-unionized scientific or technical staff.
- ***Graduate Students***
Graduate students are frequently paid Research Assistant (RA) salaries from grants (object code 6140). Each academic department sets the salary rate at which all of its resident graduate student RAs should be paid. Ordinarily, the total effort on all sources of compensated support should not exceed 1.0 FTE. Department Administrators may consult with the GSAS Admissions and Financial Aid Office to coordinate and monitor sources of support (financial aid, fellowships, teaching assistantships, and graduate research assistantships). *Note:* no fringe benefit rate is applied to graduate students, who are considered to be full-time 12-month students.

- ***Undergraduates***

Funding for undergraduate wages may be requested in the initial proposal or through a supplemental funding request, such as the DoD ASSERT or an NSF REU (Research Experiences for Undergraduates). Undergraduates are paid on the temporary payroll (6110) using an hourly rate. During the academic year, since the student is enrolled, no fringe benefits are applied. During the summer months, unless the student is enrolled in Summer School, the fringe benefit rate for temporary employees is applied to cover the costs of FICA and Workmen's Compensation.

- ***Administrative/Clerical Staff***

These employees may be either unionized or non-unionized staff. As a general rule, salaries for administrators cannot be included on federal grants as direct costs. Salary can be requested, however, if an administrator's effort **on a project** is at least 25% of his/her full-time effort *and* he/she is responsible for one or more of the following:

- Extensive data accumulation, analysis, entry, labeling, surveying, tabulation, or cataloguing; technical illustration; manuscript and publication production; searching literature; and reporting
- Making complex travel, meeting, and visa arrangements for project collaborators or workshop participants
- Organizing workshops or conferences for large numbers of participants
- Extensive desktop publishing of workshop materials
- Managing the logistics of extensive field operations necessitated by the nature of the award
- Coordinating a research program supported from multiple sources
- Performing administrative services for a major on- or off-campus research operation with separate facilities
- Performing detailed budgetary and financial management activities directly related to the award

If an administrator's salary is to be included in the proposal budget as a direct charge to a federal sponsor, the [Administrative Checklist](http://www.fas.harvard.edu/~research/admin.html)⁴⁴ must be submitted with the proposal and the appropriate box must be checked on the [Dean's Cover Sheet](http://www.fas.harvard.edu/~research/cvrsh.html).⁴⁵ Sponsors frequently eliminate these costs from budgets, so it is essential that the PI provide careful justification of this need. Guidelines for inclusion of administrative staff on proposals to non-federal sponsors who do not pay the full federal indirect cost rate are more flexible. In such cases, the Administrative Checklist is not required but the PI or Research Administrator should confer with Dean Gallant (drg@fas, 5-2628) or with the appropriate Assistant Director at OSP to determine whether direct charging is appropriate.

⁴⁴ <http://www.fas.harvard.edu/~research/admin.html>

⁴⁵ <http://www.fas.harvard.edu/~research/cvrsh.html>

2. Fringe Benefits

Fringe benefit charges pay for retirement benefits, health insurance, short-term disability insurance, mandatory life insurance, FICA, and other benefits. Different categories of employees have different fringe rates. These should be applied to the base salaries requested. Fringe benefit rates should be prorated across fiscal years (e.g., if the proposal has a January 1, 2004 start date then, using the chart below, 6 months of salary for year 1 of the award would be at the FY04 rate and 6 months at the FY05 rate).

It is not possible to charge some or all of an individual's fringe benefits to a grant unless the grant also pays the corresponding proportion of the individual's salary. In the rare case where a sponsor's published policy will not allow inclusion of fringe payments in the project budget, the PI may cover the fringe expenses from other (non-sponsored) sources.

<i>Fiscal Year</i>	Faculty	Overtime- ineligible	Overtime- eligible	Temporary	Postdoc
FY05: 07/01/04 - 06/30/05	25.4%	32.0%	40.4%	9.4%	21.3%
FY06: 07/01/05 - 06/30/06	25.8%	33.4%	43.2%	8.0%	23.2%
FY07: 07/01/06 - 06/30/07	25.1%	31.3%	42.1%	7.7%	22.1%
FY08: 07/01/07 - 06/30/08	24.2%	30.3%	41.2%	7.7%	21.2%

Fringe benefit rate increases for FY06 have been approved by DHHS. Projected fringe rates for FY07 and beyond are estimates and subject to change. For budgeting purposes, rates for years beyond FY08 should be held steady at the FY 08 levels for all employee categories.

Note: No fringe benefit rate should be applied to Harvard graduate students. The Temporary rate should be applied to summer salaries for Harvard and non-Harvard undergraduate students.

3. Equipment⁴⁶

Items are classified as "equipment" (by Circular A-110 and by the University) if they have a unit value of more than \$5,000 and a useful life of one year or more. Equipment bears no overhead. An explanation for each item of equipment identified in the budget should be provided in the proposal; whenever possible, the name, model, and vendor should be identified. The associated costs of shipping, installation, and fabrication are allowable equipment expenses. For equipment items valued at \$25,000 or more, Department of Defense agencies and other sponsors often require vendor quotes and will delay issuing an award until they are on file, so it is advisable to obtain quotations at the proposal stage. The proposal budget should estimate as accurately as possible the equipment the project will require each year so that subsequent approval by the sponsor need not be sought for items other than those specifically described in the budget of record. Any post-award substitutions must be documented carefully and approved either by the agency or, when applicable, by UPAS (University Prior Approval System).⁴⁷

⁴⁶ University Equipment Policy: http://vpf-web.harvard.edu/OSP/support/sup_spe equip.shtml

⁴⁷ UPAS: http://vpf-web.harvard.edu/OSP/managing/man_req_upas.shtml

Post-award tracking is required for equipment purchased with sponsors' funds. See Section VIII.F.

4. Computer Equipment

Computers, including laptops, are ordinarily considered general office equipment (i.e., their use is not exclusively for the project being considered for funding). Therefore, if funds for computers are requested in a budget, a justification explaining the use of the equipment *vis-à-vis* the research to be carried out must be included. The justification must also assure the agency that the computer equipment will be used exclusively for the research. Federal sponsors sometimes require further justification, in the form of a letter requesting an exception, for computer and software purchases.

5. Travel⁴⁸

The costs of travel related to the sponsored project, for the PI as well as project staff, are allowable expenses. Since travel is often one of the first budget line items to be cut by the sponsor, it is important to be as specific as possible about what travel is planned and why it will benefit the project. Domestic and Foreign Travel should be budgeted as separate line items.

6. Subcontracts and Subawards⁴⁹

Proposals may include work to be done at one or more other institutions. In these cases, the other participating institutions will be subcontractors under the Harvard (prime) award. If the Harvard PI plans to apportion the work in this way, appropriate paperwork is needed at the time the proposal is submitted to confirm the proposed subcontractor's eligibility and willingness to participate. When a subcontract has been prepared as part of a larger proposal, the total yearly cost for the subcontract is included as a line item in the Harvard PI's budget. The subcontractor may include his/her institution's indirect costs in the subcontract, but the FAS does not currently assess any of its own indirect costs on the amount of the subcontract.

Subcontracts are, in effect, mini-proposals. They should therefore include essentially the same elements as proposals. At a minimum, each subcontract should contain the following:

- line-item budget in the same format and at the same level of detail as the budget in the prime proposal,
- budget justification,
- short statement of work,
- CV or biographical sketch and bibliography for the lead PI at the subcontracting institution,
- letter of intent to collaborate signed by the Sponsored Programs Office at the subcontracting institution,
- cover sheet in the sponsor's approved format,
- representation or certification forms,⁵⁰ and

⁴⁸ Travel and Entertainment Policy: http://vpf-web.harvard.edu/ofs/travel/rei_ref.shtml

⁴⁹ Subrecipient Monitoring Policy: http://vpf-web.harvard.edu/OSP/managing/man_sub_recipient.shtml

- Subcontract Cover Sheet or NIH Statement of Intent (see Appendices for examples).⁵¹

PIs must address specific questions regarding subcontractor suitability, selection, and potential conflicts of interest prior to the establishment of a subcontract; OSP staff preparing the subcontract will forward these questions to the PI for completion and inclusion in the project file.

7. Participant Support Costs

These costs typically support training, conference, and workshop activities and may include travel, stipend, and subsistence for participants. Funds budgeted to support participants must be accounted for separately, do not bear overhead, and cannot be re-budgeted without prior agency approval.

8. Other Direct Costs

Other costs that, when applicable, should appear as line items in a project budget, include:

- *Materials and supplies*
Includes freestanding equipment with a value up to \$5,000 and consumable items such as chemicals, laboratory ware, and small component parts (if not part of an equipment fabrication). For non-federal grants where indirect costs are not reimbursed at the full federal rate, office supplies *clearly allocable to the project* may be included as materials and supplies. Office supplies are considered to be part of the indirect costs of conducting a project, so they should not be charged as a direct cost on a federal award.
- *Publication costs*
Publication costs are typically represented as the cost-per-page charges for journal articles.
- *Equipment maintenance contracts*
Maintenance of equipment directly related to the project (and in proportion to the project's use of the equipment) should be listed. Note that overhead charges are applied to these service contracts.
- *Departmental fees for instrument usage*
When these costs are identified in the budget, the following information should be provided: facilities to be used; type of instrument, the hourly cost, and the estimated number of hours needed.

Note on Computer Services: indirect costs are not applied to computer services acquired inside the University.
- *Consulting fees*

⁵⁰ Federal agencies require that Representations and Certifications (see Section III.D.3) be on file with both the awardee institution (the "prime") and the subawardee institution.

⁵¹ A Subcontract Coversheet (see Appendix 1 for a sample) provides a useful summary of key contact information for the proposed subagreement. For NIH, a Subcontract Statement of Intent (see Appendix 2 for a sample) is signed by both institutions prior to proposal submission, attesting that the parties agree to abide by the sponsor's policies and will establish an inter-institution agreement in the event an award is made.

Consultants are individuals or entities, usually from outside the University, who provide a unique service necessary to conduct the research project. These individuals are typically paid a daily rate for their services. Whenever possible, consultants should be identified by name, institution, and/or specialty.

Sponsor guidelines on the inclusion of consultants vary. The NSF and several other federal sponsors specify that the daily rate for consultants may not exceed the federal cap that is equal to the daily salary based on an [Executive Schedule Level IV Federal Employee](#).⁵² As of January 1, 2004, the NSF cap is \$524 per day, exclusive of reimbursement for travel and *per diem* expenses.⁵³

The NIH does not have a fee cap for consultants, but specifies the following:

A consultant is an individual retained to provide professional advice or services on a project for a fee but usually not as an employee of the requiring organization. The term “consultant” also includes a firm that provides paid professional advice or services. Grantees must have written policies governing their use of consultants that are applied consistently regardless of the source of support. The general circumstances of allowability of these costs, which may include fees and travel and subsistence costs, are addressed in the applicable cost principles under “professional services costs.”⁵⁴

For information on the University’s policies regarding consultants, see the following two documents (both require PIN login for access):

The Consultant Questionnaire, a checklist to help determine whether an individual is a consultant or an employee, available at http://vpf-web.harvard.edu/documents/pdf/actts_indpcontractor_3_10_03.pdf

The OGC Consulting Agreement, a document that the Office of the General Counsel recommends be signed by any consultant working for the University, available at <http://www.ogc.harvard.edu/documents/index.php> [PIN login required for access]

- *Miscellaneous direct costs*
These items should be itemized and may include human subject fees, animal facility costs,⁵⁵ long-distance telephone charges, etc.
- *Space*
Rent and other facility costs of **off-campus** facilities used to conduct sponsored activities, when they meet the criteria in OMB A-21, Section J.38.⁵⁶ Note: rental of space owned by the University may not be charged to a sponsored award.

⁵² Guide to the Senior Executive Service: <http://www.opm.gov/ses/sesguide-pay.html>

⁵³ See <http://www.nsf.gov/bfa/dga/policy/start.htm>.

⁵⁴ The full NIH Consultant Service policy is at http://grants2.nih.gov/grants/policy/nihgps_2001/part_iiia_4.htm

⁵⁵ Animal *per diem* rates to be used in budgets are available from the Molecular and Cellular Biology Financial Office, Bio Labs 5104, 495-7907. See Section V.B.4 for additional information on the use of animals in research.

⁵⁶ <http://www.whitehouse.gov/omb/circulars/a021/a021.html>, Section J.38.

C. Budget Preparation: Indirect Costs (a.k.a. “Overhead” or “Facilities and Administrative (F&A) Costs”)

1. Indirect Costs in the FAS

Indirect costs are sponsored-project-related expenses that cannot be directly and accurately associated with individual projects, e.g., the costs of heat and air conditioning, electricity, building maintenance, security, libraries, administrative services, etc.

Since not all of these costs are accounted for on a project-by-project basis, accurately totaling all indirect costs attributable to each sponsored project would be very difficult. Nevertheless, indirect costs are real costs to the University and the government recognizes the University's right to claim them as expenses related to sponsored projects. To this end, the University and the federal government negotiate three separate rates for indirect cost reimbursement.

The “**organized research**” rate is 63% through FY 04, increasing to 64% as of July 1, 2004. This is the rate to be applied to most on-campus federal awards for research or instruction and training.

The “**other sponsored activities**” rate of 29% is used when the grant supports a non-research activity such as a conference, publication, renovation, cataloguing, or curatorial project.

The “**off-campus**” rate is 26%; this rate is applied when the preponderance of effort (more than 50%) for the sponsored project will occur off-campus, i.e., in facilities not owned by or on long-term lease to Harvard.

All federal sponsors are expected to pay the federal negotiated F&A rates; exceptions should be documented in the Program Announcement or RFP.

Over the years, this University has accepted awards from foundations and other non-profits that have stated ceilings on the Facilities and Administrative costs they will pay on a grant or contract—typically from 0-25%. To account properly for the real indirect costs on these grants, at least one university, MIT, requires that the shortfall (the difference between the overhead paid and the negotiated federal rate) be billed to an internal funding source. Although the Faculty of Arts and Sciences may also move to such a policy some day, current FAS policy is less stringent and is summarized below:

1. Grant and contract proposals to government or industry sponsors must be submitted at the appropriate negotiated federal F&A rate;
2. Grant proposals to private agencies and foundations must be submitted at their maximum allowed rate and documentation of the sponsor's ceiling should be provided;
3. Proposals to private agencies and foundations that have low ceilings on maximum F&A rate should, where feasible, include as direct charges some of the items for which costs are recovered through overhead on government and industrially-sponsored grants and contracts (space, office supplies, administrative support, etc.).

2. Calculating Indirect Costs

In the budget, indirect costs are calculated by multiplying the sponsor's overhead rate by the direct cost base. Depending upon the sponsor, the direct cost base may be either the simple total of all direct costs in the budget (Total Direct Costs, TDC), or the "modified" total direct costs (MTDC), i.e., TDC minus the total of all items in the budget that do not bear overhead. Federal sponsors use MTDC.

On budgets for federal sponsors, subtract the following line items from the direct-cost base to arrive at MTDC:

- Equipment
- Participant support costs
- Subcontracts
- Harvard computer services
- Costs of space refurbishment
- In certain instances, the travel costs of invitees to grant-funded conferences and symposia.

Example 1 (TDC): A PI is submitting a proposal for a one-year project starting 7/1/04 with direct costs of \$150,000 to the XYZ Corporation, an industrial sponsor. The budget should charge the Organized Research F&A rate on Total Direct Costs (TDC). The Total Project Cost is:

<i>\$150,000</i>	<i>Total Direct Cost (TDC) base</i>
<u><i>+96,000</i></u>	<i>64% F&A on TDC base</i>
<i>\$246,000</i>	<i>Total Project Cost (TDC + F&A)</i>

Example 2 (MTDC): A PI is submitting another proposal to the NSF for the same time period and the same direct-cost amount. Of the \$150,000, \$30,000 is for a subcontract to Yale and \$20,000 will pay for a piece of equipment. Here, the Total Project Cost is:

<i>\$150,000</i>	<i>Total Direct Costs (TDC) base</i>
<u><i>-50,000</i></u>	<i>Less subcontract cost and equipment cost</i>
<i>\$100,000</i>	<i>Modified Total Direct Costs (MTDC) base</i>
<i>\$64,000</i>	<i>64% F&A on MTDC base</i>
<i>\$214,000</i>	<i>Total Project Cost (TDC + F&A)</i>

D. Budget Preparation: Cost Sharing

When the University bears a portion of the costs of a sponsored project (e.g., by purchasing equipment or supplies for the project from University resources, or by committing faculty or staff effort to the project at no cost to the sponsor) it is considered **cost sharing**.

Cost sharing may be either **mandatory** (when a sponsor requires a certain portion of the costs to be paid by other funds⁵⁷) or **voluntary** (when no such requirement exists). "Voluntary"

⁵⁷ The use of other federal sponsored funds for matching funds on federal awards is forbidden except in the rare circumstance in which two federal agencies are collaborating on a grant program, and then only with the explicit

cost sharing at the proposal stage becomes “mandatory” once the proposal is approved for funding by the sponsor.

Cost sharing has programmatic, administrative, and financial consequences for the FAS and, as a general rule, is strongly discouraged unless required by the sponsor (typically by a statement in the program announcement). An explicit commitment to devote a percentage of effort to a project carries auditable record-keeping requirements, reduces flexibility, and has an adverse effect on the University's recovery of Facilities and Administrative costs. The salary and fringe for the time committed voluntarily in a proposal, and the amount of any other contribution of University funds, are included with other direct charges in the “research base” (the denominator of the fraction used to calculate the University's federal indirect cost rate). As a result, unnecessary cost sharing reduces the Faculty’s recoverable indirect costs.⁵⁸

Cost sharing in the form of voluntarily committed faculty effort must be explained on the reverse side of the Dean’s Cover Sheet. Other cost-sharing commitments (supplies, equipment, etc.) must be detailed on a cost-sharing form that is submitted with the proposal.⁵⁹

Cost-sharing requirements are ordinarily specified by the sponsor and displayed in the budget as a fraction of total costs. Should a program announcement require cost sharing and cap indirect costs at a rate below the full federal rate, a proposal for that program should use the maximum indirect costs allowed by the sponsor in satisfying the cost-sharing requirement.

It is important to remember that once the grant is awarded, all cost-sharing amounts are subject to audit. Also, on any federal award, federal funds from a different source cannot be used to meet the cost-sharing requirement. If a revised budget is requested, remember to reduce the cost-share commitment proportionately.

E. Budget Justification

The Budget Justification is a narrative that provides additional detail on line items in the budget. Sections should be included for Personnel, Equipment, Travel, and any other budget categories that may require explanation. If the budget includes costs of normally-unallowable items, these must be justified explicitly. Equipment expenses also require careful delineation, since the sponsor approves individual line items in this category. A sample budget justification for a federal award will be found in Appendix 3.

approval of both agencies. Note: it is often possible to use non-federal sponsored research funds as cost sharing for federal grants; in such instances the non-federal sponsor’s approval should be sought.

⁵⁸ Certain federal agencies discourage voluntary cost sharing as well: a recent clarification from the NSF (<http://www.nsf.gov/bfa/dga/policy/docs/in128.pdf>) states that “Unless a program solicitation specifically requires cost sharing, proposers should: not include cost sharing amounts on line M of the proposal budget; or not exceed the cost sharing level or amount specified in the proposal.”

⁵⁹ The cost sharing form and instructions are available at <http://www.fas.harvard.edu/~research/cs.html>.

F. What Can't Be Charged to Grants (Unallowable Expenses)

The following items cannot be charged to a *federal* award and should not be included in the project budget submitted to a federal sponsor:

- *postage* unless the project has a separate and extraordinary need for postage, such as a national survey to be conducted by mail;
- *office supplies*;
- *personal computers*, unless they are part of a tagged equipment system or equivalent special scientific justification is provided;
- *individual membership dues* to societies;
- *basic telephone service*, local line and equipment charges, and local phone calls;
- *clerical/administrative salaries*, unless properly justified and documented on the Administrative Checklist.

In addition, University policies and federal regulations prohibit charging certain items as direct costs on *any* project—for example, alcoholic beverages, entertainment costs, etc. A more complete list of unallowable expenses is included in Section VII.B.⁶⁰

G. NIH Modular Grants

To help streamline the proposal review and awarding process, the NIH requires that proposals requesting \$250,000 or less in direct costs per year be submitted as “modular grants.” Funds are requested in \$25,000 increments, or “modules,” based on a locally-generated detailed budget that is not sent to the funding agency. Ordinarily the same number of modules should be requested in each year of the award period. Additional restrictions and guidelines are outlined at http://grants.nih.gov/grants/funding/modular/modular_features.htm. Key points include:

- The budget narrative must include ALL personnel by position, role, and level of effort.⁶¹ This includes consultants, personnel on any Consortium/Contractual arrangements, and any “to be appointed” positions.
- Any variation in the number of modules requested must be explained in the budget justification. Equipment costs should *not* be explained unless they result in a variation in the number of modules being requested.
- The inclusion of a subaward does not preclude using the modular submission format. In such cases the proposal should include a statement of intent to establish a consortium between the participating institutions. The subawardee should provide the PI sufficiently detailed (non-modular) budget information so that the cost of the consortium agreement (which includes the subawardee’s associated F&A costs) can be estimated to the nearest \$1,000.

⁶⁰ Detailed discussion of the allowability of specific items of cost can be found in Section J of Circular A-21, at <http://www.whitehouse.gov/omb/circulars/a021/a021.html/>.

⁶¹ The NIH now requires that a percentage of effort be identified for each participant. In situations where the PI and/or other faculty members will perform the research but request no salary, a minimal percentage of effort should be specified. Such percentages of effort are considered cost sharing. PIs should consult with Sarah White (5-3224) or Dean Gallant (5-2628) if the sponsor requires commitment of uncompensated effort on a proposal.

- The NIH Checklist page should indicate the calculated F&A costs for each year of the project, based on the number of modules requested less any non-overhead-bearing exclusions.

V. THE PROPOSAL SUBMISSION PROCESS

A. Who Reviews Proposals Before Submission to the Sponsor, and Why?

Requests for funding to be submitted to an external sponsor are reviewed in advance by the relevant Department Chair or Laboratory Director, the Dean of the Faculty or his or her designee, and the Office for Sponsored Programs. The scholarly judgment of the Principal Investigator is not reviewed and political criteria are not considered. The President and Fellows of Harvard College must approve the final research agreement.

Review by the department involves the following considerations:

- availability and equitable allocation of space and facilities among faculty members and students in the department;
- commitments, whether explicit or implied, on the unrestricted funds available to the department;
- commitments of personnel (faculty, student, or staff) that are inconsistent with departmental resources or with the general practices of the University.

Factors pertinent to Dean's review—the responsibility for which has been delegated to Laboratory Directors in some departments—include:

- aspects that may require additional expert review, such as experiments with human or animal subjects, or use of biohazardous materials;
- aspects at variance with generally accepted academic practice, legal or ethical issues, potential conflicts of interest, etc.;
- commitment of Faculty or University resources, including cost sharing or other similar arrangements, as well as the use of the Harvard name;
- inclusion in the budget of all costs legitimately chargeable to the project, such as fringe benefits, indirect costs, computer time, etc.

Institutional grants or program grants that cut across departmental lines and involve large resources may be reviewed more extensively by the Dean of the Faculty, in consultation with the Committee on Research Policy. When the institutional commitment is sufficiently large, the concurrence of the Faculty Council and ultimately of the Faculty as a whole may be sought.

Proposal review by the Office for Sponsored Programs⁶² warrants that the legal and fiscal interests of the University are protected, and that detailed contract provisions involving patents and copyrights, restrictions on publication or other sharing of data or research results, external control over hiring practices, etc., conform with those considered acceptable by the University.

⁶² Each department or center has an assigned Assistant Director or Sponsored Research Administrator at OSP. A list of these contacts can be found at http://vpf-web.harvard.edu/OSP/funding/fund_contacts.shtml#arts.

To expedite the approval process, Dean's review and OSP review can occur simultaneously. Dean's approval in the physical and natural sciences will ordinarily be provided by Laboratory Directors, except in the following circumstances:

- there is cost sharing other than faculty contributed effort;
- the proposal includes a subcontract or subaward;
- there is a non-standard facilities and administrative (indirect cost) rate;
- the Principal Investigator's appointment ends before the project ends; or
- the total project budget exceeds \$1 million.

Since the review process often involves consultation among FAS and University offices, the sponsor, and the PI, proposals should be submitted for approval **three business days** before they are due at the agency.

B. Separate Harvard Approvals

To help investigators and their administrators with the review process, a summary checksheet called the "Dean's Cover Sheet"⁶³ is attached to the front of all proposals. This form is for internal use and is not submitted to the sponsor.

The Cover Sheet asks for summary proposal information and also provides a convenient way to confirm that certain special issues relating to proposal submission have been anticipated and addressed. These separate approvals are listed below:

1. Administrative/Clerical Staff

Direct charging of administrative staff is allowed under certain circumstances, as discussed in detail in Section IV.B.1 above. If administrative salaries are to be charged to a federal award, the [Administrative Checklist](#)⁶⁴ must be included with the proposal.

2. Subcontracts or Subawards

Subcontracts to other institutions may be included in proposals for prime awards to Harvard. Additional components of the subcontract proposal are detailed in Section IV.B.6.

3. Human Subjects

The term "human subjects" includes not only individuals who participate in laboratory studies, but also other living persons from or about whom information is collected and whom the researcher can identify individually. Most research involving the use of human subjects requires advance review and approval by the Committee on the Use of Human Subjects, one of three federally-mandated Institutional Review Boards (IRBs) at the University. This holds whether or not the work is funded by outside sources, and regardless of the investigator's academic discipline.

⁶³ The Dean's Cover Sheet and instructions are available at <http://www.fas.harvard.edu/~research/cvrsht.html>.

⁶⁴ See <http://www.fas.harvard.edu/~research/admin.html>.

Tragic events involving the death or injury of individuals participating in clinical trials at other institutions over the past few years have focused national attention on the use of human subjects in research and the procedures that universities follow for review and approval of all such research, not just clinical trials. As a result, IRBs and investigators are under increasing pressure to adhere strictly to institutional and federal guidelines.⁶⁵

If a sponsored project requires the use of human subjects, or tissue or other human material that may be identifiable, the PI must confer with the Committee Office⁶⁶ to determine whether review and approval are required. Most agencies now allow proposals to be submitted with review “pending” but some will not make a funding decision until approval is granted, and neither the sponsor nor the University will allow research involving human subjects to proceed without approval or certification of exemption.

Proposals that involve the derivation or use of human embryonic stem cells are also subject to review by the University Stem Cell Research Committee (SCRC), in addition to any requirement for IRB review. Dean Gallant (drg@fas) can advise on the SCRC application and review process.

4. Use of Animals

The humane and responsible use of animals in research is a matter of considerable public interest. Harvard’s animal facilities and its policies and procedures for care and use of laboratory animals are reviewed regularly by an independent outside accrediting agency and are also subject to review by the federal Office of Laboratory Animal Welfare, the USDA, and other agencies. If a project requires the use of vertebrate animals, whether in the laboratory or in the wild, approval must be obtained from the FAS Committee on the Use of Animals in Research and Teaching.⁶⁷ Most funding agencies will accept evidence that review is pending. However, research that involves animals may not proceed (and animals may not be ordered from a supplier) until the Committee has approved. *Per diem* charges for animals that will be housed on campus or otherwise supported should ordinarily be included in the project budget; exceptions must be explained.⁶⁸

5. Biohazardous Materials

If proposed research involves the use of biohazardous materials (including recombinant DNA, microbiological agents, or infectious materials), documentation of approval from the University Biosafety Office must be obtained. That office will review the proposed procedures to confirm that proper safety measures are in place. Certain extremely toxic or hazardous biological materials, classified by the DHHS as “select agents,” require additional safety and security precautions that may be difficult to arrange in FAS laboratories. Staff

⁶⁵ FAS policies and procedures regarding the use of human subjects can be found at <http://www.fas.harvard.edu/~research/humsub.html>.

⁶⁶ Jane Calhoun is Research Officer for the Committee and further information and Committee application forms are available through her office: jcalhoun@fas.harvard.edu, Science Center 128, 495-5459.

⁶⁷ Information about the Committee may be obtained from the Animal Experimentation Coordinator, Science Center, 495-1510.

⁶⁸ Current *per diem* charges are available from the Molecular and Cellular Biology Financial Office, Bio Labs 5104, 495-7907.

from Environmental Health and Safety (EH&S) can advise investigators on proper safety procedures and the rules regarding use of select agents.⁶⁹

6. Financial Conflict of Interest

Investigators applying for funding to the NSF or one of the Public Health Service (PHS) agencies must declare any potential financial conflicts of interest to the appropriate University officials prior to submission of a proposal to the agency. In the FAS, this is accomplished *via* the PI Certification Form,⁷⁰ which must be submitted with each NSF or PHS proposal to certify that the PI and all other investigators have disclosed any potential financial conflicts of interest as required (see Section II.E).

7. Approval by the University Development Office

At the request of the President's Office, proposals submitted to certain private foundations⁷¹ require prior approval from the University Development Office. Investigators applying to any of these foundations should speak to Corporate and Foundation Relations at the Development Office to obtain approval in advance of submission.

8. Cost Sharing

Because cost sharing has significant consequences (See Section IV.D), all forms of cost sharing are subject to review and approval by the Dean or the Dean's designee at the time of proposal submission.

9. Multiple Schools

When a project involves investigators, staff, facilities, or resources from schools or entities at Harvard other than the FAS, appropriate approval from the other school or entity must be obtained. The nature of the approval will vary; consult with OSP for further information.

10. Specialized or Incremental Space

If a project will involve construction or renovation of space, or a significant change in the way FAS space is currently used, this must be noted on the Dean's Cover Sheet under "comments" and also brought to the attention of the FAS Planning Office (495-5606) for approval in advance of submission.

C. Electronic Proposal Submission

Some sponsors require that all or part of a proposal be submitted online. The [NSF FastLane](#) system leads the federal agencies in these efforts. All formal communication with NSF is through FastLane. See <http://fastlane.nsf.gov/>.

⁶⁹ See <http://www.uos.harvard.edu/ehs/bio.shtml> for information about the Biosafety Office at EH&S and applications for approval of biosafety procedures.

⁷⁰ See <http://www.fas.harvard.edu/~research/CofI.html> for instructions and forms relating to financial conflict of interest.

⁷¹ See <http://www.fas.harvard.edu/~research/reservelist.html> for the President's Special Reserve List.

Since February 2003, the Department of Energy has required that all proposal submission be done using the E-Center system; more information is available at:

<http://www.science.doe.gov/grants/>

Other federal agencies have their own systems, in various stages of development, and there is a government-wide effort to define standards for a common system to be implemented over the next several years.⁷² Similarly, many non-federal sponsors allow applications to be submitted online; this is particularly true for postdoctoral fellowships. If proposal submission to the sponsoring agency is completed electronically, paper copies of the proposal must still be provided for internal (department, Dean's, and OSP) review and approval prior to submission.

⁷² See <http://www.grants.gov>.

VI. WHAT HAPPENS WHEN AN AWARD IS APPROVED?

A. Notice of Grant Award and Participation Agreements

A Notice of Grant Award (NGA) is a generic name for any of the various documents that sponsors send to notify the University formally of the terms and conditions of an award. NGAs are issued for new grants and continuation increments as well as for other types of administrative notice. When the NGA arrives, OSP alerts the PI and the PI's department. The department and OSP Awards Management then work together to define the account structure and an Action Memo is issued to the PI (see Sections C and D, below).

Note: Participation Agreements⁷³ and all necessary cost-sharing forms must be on file before the Action Memo is released. (See Sections II.F.4 and V.B.8.)

Participation Agreements signal that the PI and all research personnel understand and agree to the terms of the University's *Statement of Policy In Regards to Inventions, Patents, and Copyrights*,⁷⁴ and the University's *Royalty Sharing Policy*.⁷⁵ While the PI, postdoctoral fellow, or student may own the intellectual property s/he creates, the ownership of any copyrights and patents depends upon the nature and amount of University involvement.

Often the terms of an NGA must be negotiated before the University can accept it.

B. Negotiation of Terms

The Office for Sponsored Programs has responsibility for reviewing the terms and conditions of all sponsored research agreements, notifying the PI and the sponsor of any necessary changes, and—working with the PI and the Dean for Research—negotiating appropriate solutions.

In contract law, starting work without a signed contract indicates acceptance of the terms. PIs are therefore advised not to start spending funds from an award before an agreement has been executed (i.e., before terms fully agreeable to all parties have been negotiated and appropriate institutional representatives have signed the agreement). If a PI wants to begin work on a project and the sponsor is unknown to the University, he/she should request an Advance Account (see Section VI.F). OSP will then identify any issues that may jeopardize the negotiation and the PI may make a fully-informed decision regarding the risks of starting work.

The basic objective of almost all award negotiations is to ensure that the University and the PI do not relinquish the right to make the ultimate decisions on the manner in which the research is to be conducted or the results disseminated. Guiding principles are both academic and financial. On behalf of the PI, the University seeks to guarantee that the sponsor cannot

⁷³ See <http://www.techtransfer.harvard.edu/ParticipationAgreement.html>.

⁷⁴ <http://www.techtransfer.harvard.edu/PatentPolicy.html>

⁷⁵ <http://www.techtransfer.harvard.edu/RoyaltySharing.html>

unilaterally amend, suspend, or terminate the project; that there be no prohibition on the publication of results; and that the ownership or control of intellectual property resulting from the research not be relinquished.

Other matters that may require negotiation concern the handling of confidential information, and/or conditions on the disclosure of some or all research findings. Publication delays to allow the sponsor to determine whether its confidential information has been disclosed or to determine whether intellectual property requires protection (i.e. filing patent applications) are permissible, but cannot exceed 60 days. The FAS Dean for Research must approve any such agreements. For additional information, PIs should consult the *Guidelines for Research Projects Undertaken in Cooperation with Industry*⁷⁶ in the Grey Book.

Harvard's policies on all of these matters are very much in keeping with those of its peers. At Harvard, as elsewhere, questions continually and inevitably arise—very often as new sponsors appear or as the contracting officers of continuing sponsors are replaced. Experience has shown that these issues can almost always be resolved to everyone's satisfaction. PIs are often asked to work with members of the FAS Research Group (Paul Martin, Dean Gallant, Alan Long, and Sarah White) and their OSP representatives during the negotiation of their sponsored research proposals to expedite this process.

C. Action Memos

When an account has been set up for a new award, the Office for Sponsored Programs issues an "Action Memo" to the Principal Investigator, with copies to appropriate administrators. The Action Memo communicates the account number, project period, obligated funds, and any special terms and conditions to the PI. Action Memos are also issued for certain modifications to an award during its period of performance.

D. Sponsored Chart of Accounts

The Chart of Accounts (CoA) is the financial coding system used to define the accounts in an institution's general ledger. The "Chart" is made up of a series of segments, each with a specific purpose and meaning, which allows efficient coding, tracking, and reporting of expenditures.

For each sponsored award, at least one Harvard account must be created to which income and expense transactions can be posted. When a Notice of Grant Award arrives, the department is notified and its recommendations on the account structure are solicited. Following this discussion, OSP and the FAS Financial Office work together to assign six of the seven segments in the 33-digit Harvard CoA string to create the account. The Object Code segment is not specified, as this pertains to the specific costs to be charged to the account. Each award has at least one main account (designated by an "M" on the Action Memo) but can also have one or more "part-of" accounts (designated by a "P" on the Action Memo).

⁷⁶ <http://www.fas.harvard.edu/~research/greybook/industry.html>

A complete description of the chart-of-accounts structure for sponsored accounts is available at http://vpf-web.harvard.edu/OSP/managing/content/man_mon_awa_rules.pdf and only a brief synopsis will be included here:

Tub	Org	Object	Fund	Activity	Subactivity	Root
School or Division	Department or Center	Transaction type	Source of funds	Project	Subproject or year	Faculty member
123	12345	1234	123456	123456	1234	12345

The three-digit **Tub** segment (370 for FAS Central, 325 for the Division of Engineering and Applied Sciences, 385 for the FAS Museums, and 415 for the Harvard College Libraries) identifies the major division within the Faculty of Arts and Sciences.

The five-digit **Org** segment identifies the department or center. Some large departments have been assigned more than one Org segment. For example, one five-digit segment may be associated with “Organized Research,” a second with “Instruction and Departmental Research,” and a third with “Other Sponsored Activities.” (This division, in keeping with the categorization of sponsored activities in OMB Circular A-21, is useful for reporting purposes.)

The four-digit **Object Code** segment identifies the type of income or expense for each transaction. Since Object Codes are transaction-related, they do not appear in the string assigned to a new account. They do, however, figure prominently in the process of entering a budget of record (i.e., the sponsor-approved budget) for the account (see Section VI.E below).

The six-digit **Fund** segment reflects the funding source. Federally sponsored accounts have Fund segments that range from 100000 to 199999; the Fund segments for accounts with non-federal sponsors lie in the range 200000 to 299999. The Fund segment for a new account is chosen from a block that has been pre-assigned to each department with sponsored funding.

Note: Fund ranges are established as needed for departments that have not previously had sponsored research.

The six-digit **Activity** segment reflects the research use or purpose of the funds. The Activity segments assigned to FAS range from 320000 to 367499. While most accounts are assigned one Activity segment, certain multi-faceted projects may be assigned more than one. An important “invisible” feature of the Harvard chart of accounts is the “A-21 code,” a tag embedded in the Activity segment of each account that reflects the type of sponsored activity, per OMB Circular A-21 (see <http://able.harvard.edu/coa/qr/ca503q> for detailed definitions). The three A-21 codes applicable to sponsored activities are:

- A02 – Organized Research
- A03 – Other Sponsored Activities
- A15 – Scholarships and Student Awards.

When an award must be assigned a different Fund segment for each year, the Activity segment often stays the same. The Activity segment of a sponsored account is also used to track non-sponsored funds for awards that involve University cost sharing.

The **Subactivity** segment has four digits. When the same Fund and Activity segments may be used throughout a multi-year award, the first two digits of the Subactivity segment are used to specify the project year. Otherwise, the first two digits are 00. The third and fourth digits of the Subactivity segment are typically used for separate tasks within an Activity. Subactivity values of 0000 are not allowed for sponsored accounts, so the main account for an award typically has a Subactivity value of 0001. Note that all transactions posted to sponsored awards must be coded at the Subactivity level, and each Subactivity for an award must be budgeted separately.

The five-digit **Root** segment identifies the Principal Investigator of the sponsored award. Each department has an assigned range of Root values. **Every transaction in the FAS that uses sponsored funds must have a non-zero Root segment.**

E. Sponsored Budgets (Sponsored Budget Tool and FASSPAR)

When an Action Memo is issued, the budget approved by the sponsoring agency is usually attached, especially when the sponsor has mandated a revision to the budget submitted with the original proposal. The department (either a PI-level or a department-level administrator, depending on the unit) is responsible for entering the initially approved budget into the General Ledger. The budget of record appears as column “B” on the Period Expense Report and provides a useful mechanism for monitoring expenditures. Any subsequent change to the budget requiring either internal (*via* UPAS) or sponsor approval must also be entered into the budget of record.

Two alternative tools can be used to enter or modify sponsored budgets:

The **Sponsored Budget Tool** (SBT) is one of a suite of financial applications provided by the University (see <http://vpf-web.harvard.edu/applications>). The SBT requires Internet Explorer and a Budgeting Responsibility (arranged with the Data Security and Reporting Administrator in the FAS Financial Office through the departmental financial contact). With this tool, budget line items are entered, by Object Code, for a particular number of months.

FASSPAR, a tool developed specifically for the FAS (see <http://admin-apps.fas.harvard.edu>), shows the entire budget, calculates fringe and overhead costs automatically, stores draft budgets for eventual upload, and uses budget categories that match the language of proposal budgets. FASSPAR works with all current popular browsers (Internet Explorer, Netscape, Safari, etc.). The FASSPAR budgeting capability does not require a Budgeting Responsibility. Since many departments in the FAS prefer that entering the budget of record be centralized, administrators should be aware of their department’s policy prior to uploading budgets in FASSPAR. Administrative access to FASSPAR is arranged with Alan Long in the FAS Financial Office through the departmental financial contact.

F. Spending at Risk: Pre-award Spending and Advance Accounts

Notwithstanding the problems that might result from spending funds from an award before a final agreement is executed, it is possible, under A-110 “Expanded Authority,”⁷⁷ to request authorization for pre-award spending on grants and cooperative agreements with most *federal* agencies and to charge award-related expenses **up to 90 days prior to the award start date**. To request pre-award spending, a PI must complete a University Prior Approval System (UPAS) form,⁷⁸ specifying the amounts of direct and associated indirect costs needed, and providing a rationale for the request (e.g., hiring a postdoctoral fellow to begin the research, ordering a piece of equipment that will take several months to build, etc.). If the award is ultimately not made, or is made for a lower amount, or the start date is beyond the 90-day pre-award period, the department is responsible for any unallowable charges.

For those federal agencies that do not grant expanded authorities, as well as for non-federal sponsors, PIs may use an [Advance Account form](#)⁷⁹ to establish a new account. Advance Accounts may also be appropriate in situations where the PI wants to begin work on the project while the terms of the award are in negotiation. Such commitments should only be made if Harvard and the sponsor have successfully negotiated awards in the past, since any charges incurred are the department’s responsibility if agreement on acceptable terms cannot be reached. It is also appropriate to establish an Advance Account when an account number is needed to make an appointment, but the account will not be charged. This situation is common for NIH training grants where “year logic” is used, to keep appointments synchronized with funding cycles.

	Pre-award Account (UPAS Form)	Advance Account (Advance Account Form)
Type of Award	Federal grants and cooperative agreements only	Federal or non-federal grants, contracts, subcontracts, or cooperative agreements
Maximum period before award start date	Charges may occur up to 90 calendar days prior to the official start date of the award.	Charges to an Advance Account may be made while the award is being negotiated. However, after the actual award period is determined, any charges preceding the official start date are not allowed without explicit sponsor approval.

Establishing an account “at the risk and request” of the Department—whether by UPAS or Advance Account—allows charges to be tracked properly, prevents the accumulation of charges in unrelated “holding” accounts while waiting for official sponsor authorization, and reduces the likelihood of late cost transfers. All “at risk” accounts should be monitored with special care.

⁷⁷ <http://www.whitehouse.gov/omb/circulars/a110/a110.html> Subpart C: Post Award Requirements, Section 25: Revisions of Budget and Program Plans (e)(1).

⁷⁸ http://able.harvard.edu/forms/OSP_upas1.pdf

⁷⁹ http://able.harvard.edu/forms/adv_acc_request.pdf

VII. MANAGING AWARDS

A. General Guidelines for Spending Sponsored Funds

One of the most important aspects of grant administration is the proper expenditure of funds. Sponsored funds can be used to defray most if not all of the costs of doing research. It is imperative, however, to abide by guidelines that specify those expenses that should be listed as direct costs on federal awards and those that should be reimbursed through indirect cost recovery. PIs and their research administrative staff should be aware of the following principles, outlined in OMB Circular A-21, which determine the appropriateness of listing an expense as a direct charge on a sponsored award: allowability, allocability, and reasonableness.

1. Allowability

The permissibility of charging an expense directly to a sponsored research account depends on whether the expense meets federal grant criteria described in OMB circulars (see Section VII.B below) and whether it is included in the sponsor-approved budget.

Different Purpose and Circumstance

Occasionally, a research project requires an unusual or disproportionate amount of a cost that is ordinarily unallowable, like postage, administrative assistance, or first-class air travel. Such charges may be allowable if they truly involve a “different purpose and circumstance,” if they are clearly associated with the project, and if the sponsor has approved them. One example of “different purpose and circumstance” might be charging postage to conduct a mail survey to collect data for the research project. Another might be charging first- or business-class air travel if the PI can certify that there is a medical condition that requires it; in this case the supporting documentation should be provided to the Harvard Travel Office. Catering (provided there are no charges for flowers or alcoholic beverages!) may also be an appropriate charge on a grant to fund a conference.

2. Allocability

If a cost can be identified with a particular research project with a high degree of accuracy, it is “allocable” to that project. In many cases, it is appropriate to split a cost among multiple projects, but the proportions must be determined either exactly (for example, by direct measurement of the respective benefits to each project) or by some predetermined “allocation scheme” (for example, a documented arrangement under which all bulk chemicals will be charged to two projects in a 60:40 ratio since there are three researchers on the first project and two on the second). Auditors often ask for proof that a particular purchase benefited only the project that they are auditing, so it is FAS policy that written, defensible allocation schemes must be on file before charges are split-coded among multiple sponsored accounts.

3. Reasonableness

Charges must be “reasonable,” i.e., in line with what a prudent person would pay for a similar item or service under similar circumstances.

Since decisions about which costs are allowable depend on many factors, a second opinion can be useful. In the FAS, Sarah White (5-3224) and Alan Long (6-2491) can help with such questions; the department's Financial Services representative at OSP is also a useful contact for help and information.

B. Specific Guidelines for Spending Sponsored Funds: Unallowable Expenses

Most allowable costs fall into the broad direct cost categories of personnel, equipment, travel, supplies, publication of results, communication, consultants, and subcontracts. These items are charged to grants using a subset of the Object Codes available in Harvard's chart of accounts; see <http://able.harvard.edu/coa/qr/pg302q>. Certain types of items within these broad expense categories must **not** be charged to federal awards:

Basic Administrative and Operational Costs

- Office supplies, pens, paper, basic software, etc.
- Local telephone and fax; telephone line and equipment charges
- General clerical or secretarial assistance⁸⁰
- Laptops and desktop personal computers⁸¹
- Postage, express mail⁸²
- Hazardous waste disposal
- Proposal preparation costs

Research-related Expenses Ineligible for Reimbursement

- Books and periodicals⁸³
- Dues and memberships⁸⁴
- Photocopying
- Conference fees

Miscellaneous Unallowable Expenses

- Alumnae/i activities
- Commencement and convocation costs
- Organized fundraisers
- Lobbying (Federal, State, or Local)
- Student activities
- Bad debt costs

⁸⁰ In certain circumstances, administrative staff salaries can be charged to federal awards; see Administrative Checklist, Section IV.B.1.

⁸¹ Personal computers are ordinarily considered "General Purpose Equipment" – equipment that could be used for purposes other than the research activity. Examples include office equipment and furnishings, air conditioners, reproduction and printing equipment, motor vehicles, and automatic data processing equipment. See [OMB A-21, Section J 16 a \(4\)](#).

⁸² Freight to ship component parts necessary for the research is allowable; use Object Code 8702.

⁸³ Costs of reprints of articles on the research funded by the grant are allowable.

⁸⁴ The costs of the institution's memberships are allowable; the costs of an individual's memberships in business, technical, and professional organizations are not allowable.

- Selling and marketing costs
- Fines and penalties

Entertainment/Goods or Services for Personal Use

- Sales tax
- Alcohol
- Flowers
- Catering
- Gifts
- Space rental
- Furniture
- Construction
- Housing and personal living expenses (utilities/rent/etc.)

Travel

The rules regarding travel are complex.⁸⁵ Certain expenditures—for example, commuting costs, limousines, travel costs when not on “travel status,” and airfare above “lowest available commercial discount airfare” or “customary standard (coach or equivalent) airfare”⁸⁶—are clearly unallowable. Except for some extenuating circumstances, travel must be on a US flag carrier if charged to a federal grant.

Foreign travel on a non-US-flag carrier, and the absence of documentation on file that effort had been made to obtain the lowest available airfare, resulted in an A-133 audit “finding” and led to the adoption, in July 2003, of new OSP Sponsored Travel Cost Guidelines on air travel using federal funds. See http://vpf-web.harvard.edu/OSP/managing/man_pos_entertainment.shtml.

All Harvard travelers using federal funds (Fund range 100000 - 199999) for airfares are subject to federal cost principles in OMB Circular A-21, Section J.48.c, “*Commercial air travel*,” seen at <http://www.whitehouse.gov/omb/circulars/a021/a021.html>. Annually, federally-funded purchases are audited under OMB A-133, which tests for compliance with cost principles in A-21. To maintain compliance, travelers should have documentation showing that tickets were purchased in accordance with the following guidelines:

⁸⁵ Most of the rules come from two sources: the Harvard University Travel Policy (<http://www.travel.harvard.edu/>) and OMB Circular A-21 (<http://www.whitehouse.gov/omb/circulars/a021/a021.html>) Section J. A-21 Section J also provides considerable detail on certain other types of costs, e.g., advertising, insurance, payroll, depreciation, equipment, investments, etc., that are not unequivocally allowable or unallowable.

⁸⁶ From OMB Circular A-21, Section J.48.c, *Travel Costs*, Commercial air travel. “Airfare costs in excess of the lowest available commercial discount airfare, federal government contract airfare (where authorized and available), or customary standard (coach or equivalent) airfare, are unallowable except when such accommodations would: require circuitous routing; require travel during unreasonable hours; excessively prolong travel; greatly increase the duration of the flight; result in increased costs that would offset transportation savings; or offer accommodations not reasonably adequate for the medical needs of the traveler. Where an institution can reasonably demonstrate to the sponsoring agency either the non-availability of discount airfare or federal contract airfare for individual trips or, on an overall basis, that it is the institution’s practice to make routine use of such airfare, specific determinations of non-availability will generally not be questioned by the federal government, unless a pattern of avoidance is detected. However, in order for airfare costs in excess of the customary standard commercial airfare to be allowable, e.g. use of first-class airfare, the institution must justify and document on a case-by-case basis the applicable condition(s) set forth above.”

Domestic Air Travel

Travelers purchasing domestic flights (excluding Alaska & Hawaii) using federal funds should:

- buy the lowest-cost economy or coach-class tickets; and
- use reasonable, e.g., non-stop, same-day itineraries, booked reasonably in advance of travel, i.e., 30 days or more if possible; and
- fly on US-flag carriers only; and
- use one of Harvard's preferred travel agencies: [Expedia Corporate Travel](#), [Great International Travel](#), [Oriental Tours & Travel](#), [The Travel Collaborative](#), or [World Travel BTI](#).⁸⁷

Travelers using another travel agent/service should have documentation supporting their choice. If travelers find lower-cost airfares through another source, proof must be maintained and made available to auditors if requested. Documentation may consist of the final airfare invoice and itinerary, or ticket, and evidence of a higher-cost option offered through one of Harvard's preferred travel agencies for the same itinerary. Extenuating circumstances, e.g., the traveler was unable to use the preferred agents, not able to book early, etc., should also be documented.

Airfare costs in excess of the lowest costs found through Harvard's preferred agents cannot be charged to federal funds, nor can they be recovered as indirect costs. However, if higher-cost travel is approved by a department, the excess costs may be charged separately, to a non-federal account, using Object Code 8450, "items ineligible for federal reimbursement."

International Air Travel

Harvard travelers who use federal funds to purchase tickets for international travel (including travel to Alaska & Hawaii) should abide by all of the Domestic Air Travel guidelines noted above, with the following exceptions:

- They may purchase the lowest-cost business-class tickets.
- They must fly on US-flag carriers when departing from the US and where available while abroad, even if less costly foreign flag carriers are available.
- They may use other travel agents or web sites to book air travel for trips when departure and arrival points are completely outside the US.
- They may use foreign carriers when no US-flag carriers provide service in the area of travel or when the use of foreign carriers is a necessity.

Harvard travel policy does not allow some travel-related items to be reimbursed; see <http://www.travel.harvard.edu/office/policy/nonexp.html>.

C. Changes that Require Sponsor Prior Approval

The Federal Demonstration Partnership (FDP) has assembled an *FDP Prior Approval and Other Requirements Matrix* that summarizes the charges requiring federal agency approval

⁸⁷ See <http://www.expedia.com/daily/corporate/>, <http://www.greatintltravel.com/>, <http://www.ott-travel.com/>, <http://www.travelcollaborative.com/>, <http://www.worldtravel.com/>.

and those that can be approved and/or tracked internally. This matrix is available at <http://www.nsf.gov/pubs/fdp/fdpmatrix.xls>.⁸⁸

1. Revised Budgets

Most sponsors understand the need for flexibility in adhering to the budget of record (the budget upon which the grant was made) and allow PIs to change various line items without agency approval, provided such changes do not affect the scope of work. This means that actual expenditures in many budget categories may vary from the approved budget. However, certain line-item categories are “restricted,”⁸⁹ and prior approval must be obtained, either by contacting the sponsor directly (rare) or by using the University Prior Approval System (UPAS) (common), before rebudgeting into these restricted categories.

- Prior approval should be sought if the rebudgeting will involve moving substantial sums into a budget category (general rule: 25% or more of the total (cumulative) direct cost of the project, OR a rebudgeting of \$250,000 or more, whichever is less). Exception: prior approval to rebudget is not required on NIH modular grants if the scope remains unchanged.
- Prior approval *must be obtained directly from the sponsor* if the rebudgeting will result in a change of the scope of work of the award—regardless of the amount rebudgeted.

Once the necessary rebudgeting approvals are authorized, the budget must be updated. The Sponsored Budget Tool or FASSPAR Budget Entry page should be used to modify the budget, which appears in the “Budget” column of the Period Expense Report for the account. Updated budget information for a project is essential for comparing expenditures with amounts budgeted.

2. No-cost Extensions

If the PI feels that the project can be completed with the remaining funds but that more time will be needed, he/she must apply for an extension of time known as a “no-cost extension.”

If the sponsor is a federal agency, there is a good chance that this extension can be requested *via* UPAS. The justification on the UPAS form must explain in detail why more time is necessary to complete the proposed work—it is not acceptable to say that money is left over that cannot be spent during the original award period. **The agency must be notified of no-cost extensions by OSP 10 business days prior to the original termination date.** A no-cost extension under the UPAS system may be for any period of time up to twelve months beyond the end date of the award. A UPAS may be used to extend the award only once; if a further time extension is needed, agency approval must be sought.⁹⁰

Non-federal sponsors and/or federal agencies that do not grant the University UPAS authority may also permit extensions in time without incremental funds. Requests for such extensions

⁸⁸ FDP terms and conditions are maintained by the NSF at http://www.nsf.gov/home/grants/grants_fdp.htm

⁸⁹ Restricted budget categories are set forth by the sponsor in the terms and conditions of the award. Two categories that are restricted for most sponsors are equipment and subcontracts. See Sections VII.C.8 and VII.C.9.

⁹⁰ The NSF requires that second no-cost extensions be submitted *via* the [FastLane](#) system 45 days in advance of the end date.

usually take the form of a letter, addressed to the sponsor's Program Director or Grants Officer, describing what has been accomplished and explaining why more time is required to complete the project. Also, most sponsors require that the PI set forth the amount of award funds remaining and provide a budget showing how those funds will be used during the extension period. Requests for no-cost extensions are processed *via* the same process as other proposals: Department, Dean, and OSP.

3. Supplemental Funding Requests

If, during the course of the project, the PI feels that supplemental funds are required, he/she must submit a request to the agency in the form of a short proposal outlining the work to be done and the need for additional funds. A budget and budget justification must be attached showing how the additional funds will be used. The supplement request is submitted in the same manner as any other proposal.

4. Substantive Changes to Proposed Research

Significant changes to the research from what was proposed and approved by the sponsor typically require notification and/or approval. PIs are therefore advised to contact their Program Officers as soon as possible in the following situations:

Changes in Objectives or Scope

Neither the phenomena under study nor the objectives of the project stated in the proposal should be changed without first obtaining sponsor approval. Such changes should be proposed to the sponsor in writing and countersigned by an Authorized University Signatory at OSP.

Changes in Methodology

The PI may wish to pursue interesting and important leads that arise during the conduct of a research project, or to adopt an alternative approach that appears to be a more promising means of achieving the objectives of the project. PIs should contact their Program Officers in these situations to ascertain whether formal approval is necessary.

Significant Changes, Delays, or Events of Unusual Interest

It is appropriate for the PI to contact the Program Officer when he/she becomes aware of any delays or adverse conditions that will affect the ability to attain the objectives of the project or to meet any time schedules outlined in the original proposal. The Program Officer should also be informed when any events of unusual interest occur during the course of the project.

5. Change of PI

The sponsor's decision to support or not to support a proposal is based, to a considerable extent, upon its evaluation of the PI's knowledge of the field of study and ability to conduct the project. Therefore, sponsors expect to be notified formally if the PI:

- devotes substantially less effort to the work than anticipated in the approved proposal,
- leaves the University (or even transfers between Harvard schools), or
- otherwise relinquishes active direction of the project.

In such instances the PI must request formal agency approval for the change.

6. Absence of PI

Short-Term Absence of the PI

If a PI will be absent from the research for a period of time less than three months, the sponsor should be notified and formal agency approval should be sought. The agency can decide whether a temporary PI should be appointed. It is advisable for the PI to discuss these situations directly with his/her Program Officer.

Long-Term Absence of the PI

If the PI will be away from the project for a period longer than three months, arrangements for interim oversight of the project should be made and a request for approval sent to the agency. This information should be provided to the Program Officer as far in advance as possible. An Authorized University Signatory at OSP must also endorse these requests. The Program Officer typically provides written approval of such arrangements. If the arrangements are not satisfactory to the sponsor, the award may be terminated.

7. Transfer of Grant to or from Harvard

Grants and contracts are most often made to the institution rather than to the PI. Therefore, when a PI wishes to transfer a grant to or from Harvard, appropriate institutional approvals must be sought. Sponsors require that the award be properly closed out at the PI's prior institution before granting approval to transfer the award to the new institution. The prior institution must provide a final financial accounting with which the sponsor concurs. The award balance will then be transferred to the new institution. It is the PI's responsibility to notify his/her Program Officer as soon as possible to alert them to any changes of this nature. No transfers will be made until the PI is up-to-date on all reporting requirements.

In many cases, grants to be transferred to Harvard from other institutions will have a lower Facilities and Administrative (F&A) rate than Harvard's negotiated federal rate. In some circumstances Harvard may choose to accept the F&A rate approved at the former institution, rather than requiring rebudgeting of the award, with the understanding that this lower rate will be allowed only until the next competing continuation or renewal phase.⁹¹

Note: *pending* proposals require formal transfer of ownership when the PI moves from one institution to another before a funding decision has been made. In this situation, the PI's previous institution relinquishes ownership of the proposal to the sponsor. The new institution then submits a revised budget (using its F&A rate), budget justification, and other pertinent forms as requested by the sponsor. In some cases the agency may require the PI to resubmit the proposal in its entirety.

8. Equipment not in the Original Budget

Approval is generally necessary when the PI of a federal award wishes to purchase an equipment item (defined as costing more than \$5,000 with a useful life of one or more years) not originally identified in the budget. These requests require a scientific/programmatic rationale for the purchase, a cost breakdown, and, if possible, vendor quotes. Such requests must be vetted through the University on a UPAS form and signed by an Authorized University Signatory. Prior approval is not required for a change of vendor or model for

⁹¹ However, fringe benefit rates on any award being transferred to Harvard from another institution must be adjusted to current Harvard rates.

research and technical equipment included in the approved budget, or for a change of 25% or less in the acquisition price of approved equipment.

9. Subcontracts not in the Original Budget

In general, sponsors must approve subcontracts not identified in the original budget, either directly or *via* UPAS. Appropriate paperwork from the potential subcontractor must be included: a cover sheet and necessary representations and certifications signed by an Authorized Institutional Signatory, a statement of work, and a budget and budget justification. The Harvard PI should supply a cover letter explaining the need for the subcontract.

10. “Related” grants

Federal sponsors allow PIs establish “relatedness” between grants from different agencies, allowing charges to be transferred between the awards. The PI should be able to provide documentation demonstrating the scientific or technical commonality of the work being done. It is permissible to move personnel between related grants so long as it can be verified that the objectives of the projects on which the personnel are working are likewise related. It is also permissible to pay an individual from multiple grants, provided that a **reasonable allocation** scheme is in place, i.e., that each grant contributes in proportion to the benefit that accrues to the corresponding project.

While it is permissible to share personnel costs among related grants for related projects, sharing them among **unrelated** grants is not allowable. Regardless of whether the grant periods for two awards overlap, if personnel are compensated from an award, they must be working on the project(s) supported by that award.

NIH’s policy allowing grants with significant commonality to be designated as “closely related” has recently been superseded.⁹² As of December 1, 2003, the NIH policy reads, “Closely related work: the option for grantees to pursue prior approval to account for multiple projects under a single cost objective has been eliminated. NIH will now apply the relatedness provision of OMB Circular A-21 (C., 4., d., (3))⁹³ to all NIH recipients which states [that] if a specific cost can not be reasonably allocated to a specific project, it can be charged to any of the benefiting projects on any reasonable basis.”

⁹² See <http://grants1.nih.gov/grants/guide/notice-files/NOT-OD-04-009.html>

⁹³ OMB Circular A-21, section C. 4. d.:

- (1) *Cost principles*. The recipient institution is responsible for ensuring that costs charged to a sponsored agreement are allowable, allocable, and reasonable under these cost principles.
- (2) *Internal controls*. The institution's financial management system shall ensure that no one person has complete control over all aspects of a financial transaction.
- (3) *Direct cost allocation principles*. If a cost benefits two or more projects or activities in proportions that can be determined without undue effort or cost, the cost should be allocated to the projects based on the proportional benefit. If a cost benefits two or more projects or activities in proportions that cannot be determined because of the interrelationship of the work involved, then ... the costs may be allocated or transferred to benefited projects on any reasonable basis, consistent with subsections d(1) and (2).

VIII. TOOLS FOR MANAGING RESEARCH AT THE TRANSACTIONAL LEVEL

Charges are posted to grant accounts in a variety of ways. This section describes tools that are used to generate transactions and discusses some policies and procedures associated with certain types of charges.

A. ASPerIN

Appointments for all personnel are made through the Arts and Sciences Personnel Information Network, ASPerIN. Once the appointment has been made in ASPerIN and also (typically a few days later) in the University's PeopleSoft HR system, salaries and corresponding fringe benefit charges will be withdrawn automatically from the account(s) specified. Eventually, ASPerIN and PeopleSoft will be linked electronically, but for now, ASPerIN generates paper forms that are reentered into PeopleSoft by Central Administration staff. Training on ASPerIN is available through the FAS Administrative Systems Assistance Program (ASAP), at 496-7136 or fasasap@fas.harvard.edu. The ASAP web page is <http://www.fas.harvard.edu/~fasasap/>.

B. ERP Power

Supplies, equipment, and some services are typically obtained with the aid of purchasing software (either ERP Power or Web Voucher) or by using a Purchasing Card (see below). ERP Power is a full-service desktop requisitioning, purchase order, receiving, and invoice-payment system. Each purchaser has an approval hierarchy within the program that either allows the purchaser to approve his/her own requisitions to obtain purchase order numbers or routes the requisitions to an alternate approver if the purchase amounts exceed preset approval limits. Authorized account numbers for each purchaser are maintained in the program, making coding straightforward. Goods can be ordered electronically in ERP Power, paving the way for invoices to be paid (also electronically) when received. Access to ERP Power is administered at the department level in departments with high purchasing volumes.

C. Web Voucher

For departments that do not use ERP Power, most purchases of goods or services are charged to Harvard accounts using Web Voucher, a tool distributed University-wide. Access to Web Voucher is often centralized in departments and other administrative units, rather than distributed to individual desktops. Training on Web Voucher is available through the FAS Administrative Systems Assistance Program ([ASAP](#)), at 496-7136 or fasasap@fas.harvard.edu.

D. Purchasing Card (PCard)

Smaller purchases (usually those under \$1,000) are often made with a purchasing card, or PCard, which is used as a credit card. PCards, with attached default account coding, are issued to individuals. Purchases must be “swept” to the correct Harvard account (if different from the default) on a regular (usually weekly) basis, using a dedicated software interface. The PCard may not be used for personal expenses, travel expenses, or goods or services obtained from unincorporated vendors. Training is required before a PCard can be issued. PCard access is determined at the department level.

E. Additional Purchasing Certifications

1. Vendor Justification Form

For purchases of \$5,000 or more with federal funds, and other purchases exceeding \$10,000, a *Harvard University Vendor Justification/Price Verification Form* must be completed. (http://able.harvard.edu/forms/vendor_justification.pdf).

2. Debarment Certificate

For purchases of \$25,000 or more, a *Debarment Certificate* (<http://able.harvard.edu/forms/debarment.pdf>) must be completed. The vendor must execute a certificate when the Purchase Order is issued and the certificate must be submitted to Accounts Payable along with the invoice.

3. Equipment Screening Form

The University requires that an *Equipment Screening Form* accompany every purchase with federal money of equipment that costs \$50,000 or more. (http://able.harvard.edu/forms/em_screening.pdf).

F. Equipment Management

If equipment is purchased with federal funds, regulations require that its status be monitored throughout its useable life and that its location and condition be verified at least biennially. Harvard also tracks equipment purchased with University funds, since depreciation of this segment of the equipment inventory can be charged to the government through F & A recovery on sponsored awards. The University has an equipment policy,⁹⁴ implementation of which is handled at the tub level by an Equipment Manager (Alan Long, 6-2491, aklong@fas.harvard.edu) and a network of Departmental Equipment Officers (DEOs), using a dedicated Web-accessible database management system. Most equipment-related data can be stored in the system, but there are some situations for which paper forms bearing departmental authorized signatures must be completed:

- *purchases above certain dollar thresholds* (see VIII.E above),
- *initiation of fabrication projects* (http://able.harvard.edu/forms/multiple_inv_fab.pdf),
- *placement in service of fabrication projects* (http://able.harvard.edu/forms/notification_completion_fabrication.pdf),

⁹⁴ See http://vpf-web.harvard.edu/OSP/support/sup_spe equip.shtml.

- *off-campus use* (http://able.harvard.edu/forms/off_camp equip_use.pdf),
- *disposal (i.e., donation, transfer, or decommissioning)* (http://able.harvard.edu/forms/eq_disposition_notify.pdf),
- and/or *sales* (http://able.harvard.edu/forms/external_sale_of_capital_equipment.pdf).

G. Travel Reimbursement

Harvard's travel policies are many and varied, as explained in detail at <http://www.travel.harvard.edu/office/policy/policy.html>.

Where possible, travel expenses should be charged to a corporate charge card (currently American Express, but soon to be replaced by a GE Capital MasterCard). Reimbursement for travel expenses not charged to a corporate charge card is usually accomplished using Web Voucher. Reimbursement will ordinarily be made directly to the traveler's direct-deposit account, but a reimbursement check can be sent. Auditors are particularly attentive when checking travel charges on grants, so it is very important to keep backup paperwork on file that relates charges to the specific aims of the research project and documents that the lowest fare has been obtained (see Section VII.B).

It is important to request reimbursement in a timely fashion. The University has a strict 60-day time limit for submission of expenses for travel reimbursement. See <http://vpf-web.harvard.edu/documents/>.

H. Interdepartmental Charges

Charges between departments are usually accomplished using journal transfers (see below) and typically require sign-off by the department being charged. Because these charges often do not involve a formal invoice, adequate alternative paperwork documenting the allocation of charges to the grant should be kept on file.

I. Journal Transfers and Cost Transfers

Occasionally, mistakes are made and charges are posted to an incorrect account. When the destination account is not a federal sponsored account, the change should be made by "journal transfer." Journals to a federally-sponsored account are called "cost transfers." Many auditors consider an excessive number of cost transfers, especially transfers done long after the original transactions, to be an indication of poor financial management, so Harvard's cost-transfer policy requires that they be justified soundly.

In general, cost transfers made within 90 days of the 15th of the month after the original transaction was posted can be made with fewer restrictions than those made after 90 days. With certain exceptions, a cost transfer consists of a journal transfer and a *Cost Transfer Explanation and Justification Form*

(http://vpf-web.harvard.edu/OSP/managing/man_cos_transfer.shtml#form). There are four questions on this form, only two of which must be answered for transfers under 90 days. Transfers over 90 days need FAS as well as OSP approval. The full Harvard cost-transfer policy is provided at http://vpf-web.harvard.edu/OSP/managing/man_cos_transfer.shtml.

J. Cost Sharing

When the terms of an award mandate that the University contribute a certain proportion of the costs of a project, this cost sharing must be documented for audit purposes. Cost-sharing expenditures should be tracked through the Activity and Subactivity segments of the sponsored account code and the Fund segment of the non-sponsored account that provides the cost sharing (see Section VI.D for a refresher on the chart of accounts). A report run at the end of the project using the particular combination of sponsored Fund and non-sponsored Activity-Subactivity will provide a complete summary of the cost-sharing contribution. Occasionally, a department or center will use the chart of accounts in a way that prevents this type of automatic tracking. In these special cases, the cost sharing must be documented manually through records maintained outside of Harvard's accounting system.

IX. REPORTING AND MONITORING

Good grants management has many elements, including: ensuring that charges are allowable, allocable, and reasonable; spending funds in accordance with the budget; paying researchers and staff correctly and on time; certifying effort of faculty and researchers on federally-funded projects; adhering to University procurement and travel policies; keeping track of equipment bought with grant funds; monitoring expenditures by subcontractors; tracking cost sharing, if any; filing interim and final progress reports; and closing out awards in a timely fashion.

A. Financial Reports

Access to accurate and timely financial information is essential for successful grants management. It is wise to review charges on sponsored accounts at least monthly. The University provides two reports (the Period Expense Report and the Detail Listing) that are important for monitoring sponsored accounts, and the FAS has developed a tool (FASSPAR) that provides a number of enhanced reports for each Principal Investigator's grants.

1. Period Expense Report (PER)

The Period Expense Report (PER) shows budget-to-actual-expenditure data for each Harvard Object Code that has been used on a grant account. There are columns for actual expenditures in a specified budget period, budget, actual expenditures over the life of the account, encumbrances (unused for the moment), expenses + encumbrances, remaining on budget, and percent of budgeted amount expended. Rows correspond to individual Object Codes. Total direct expenditures (for the specified period and to-date), total indirect costs, total overall costs, and total income collected are displayed at the bottom of the report. The PER is available through the Web-based tools AWS2 and HUDINI, access to which can be arranged by the Department's financial administrator. Output can be viewed onscreen or downloaded in either .pdf (Acrobat) or .csv (Excel) format to a local computer. The PER (or the FASSPAR equivalent described below) for each sponsored account should be reviewed every month as a progress report on grant expenditures. Additional information on the PER can be found at <http://able.harvard.edu/repcat/rc001s/>.

2. Detail Listing

Detail Listings record individual transactions in a specified period, sorted and subtotaled by any of the possible input parameters (e.g. Tub, Org, Object Code, Transaction Date, Fund, Activity, Root, etc.). Like the PER, the Detail Listing is available through AWS2 and HUDINI, and output is in either .pdf or .csv format. There is a somewhat simpler and more readable sibling, the **Detail Listing Lite**, which has fewer columns and is only available as .pdf output. Also like the PER, the Detail Listing should be reviewed each month and its transactions reconciled to appointment, purchasing, and travel data. Additional information on the Detail Listing can be found at <http://able.harvard.edu/repcat/rc001f/>.

B. FASSPAR (FAS Sponsored Project Accounting Reports)⁹⁵

FASSPAR is a Web-based tool that provides a suite of reports, some general and others quite detailed, for a Principal Investigator's sponsored accounts. In addition to summaries of the PI's sponsored portfolio and a PER-like report for each individual account, there are specialized reports on personnel, purchases, equipment, deadlines, cost sharing, and invalid codings. The program accommodates purchasing **encumbrances**, decreasing available balances by the amounts of unpaid ERP Power purchase orders. There is also an embedded **Projection Spreadsheet**, which is prepopulated with monthly actual expenditure data from the start of the grant to the present, broken down by expense class. The report projects monthly personnel expenses for the remaining months of the grant period. It also projects average monthly expenses in various categories including: supplies, printing and publishing, consultant costs, etc. Actual and projected expenses can be graphed within the spreadsheet and compared with an idealized straight-line spending pattern. Rows can be added to the spreadsheet corresponding to future employees for whom appointments do not yet exist, and the effect of their costs on the projected expenditure "burn rate" can be examined. These "what-if" scenarios can be saved on the FASSPAR server for later use. FASSPAR can also be used for budgeting (see Section XI.E).

Access to FASSPAR can be arranged with Alan Long in the FAS Financial Office, through the departmental financial administrator.

C. Effort Reporting

The federal government requires that the effort expended on sponsored projects by faculty and by employees paid from those projects be documented.⁹⁶ Harvard complies with this requirement by collecting a series of certifications described in detail at <http://www.fas.harvard.edu/~research/effort.html>. The FAS has recently introduced an electronic signature Faculty of Arts and Sciences Effort Reporting System (FASERS), which PIs access using their ID and PIN numbers. The system is used for faculty academic-year effort reports as well as academic-year and summer salary certification forms. Departmental Effort Coordinators or other designated individuals in each department are responsible for printing and filing hard copies of all reports that must be retained.

Faculty academic-year effort reports

Faculty academic-year effort reports, completed in the early fall, certify that the effort that faculty committed explicitly in proposals for funded federal projects was expended. These reports also collect information about the time spent on departmental administration. Data from these reports are used to calculate the faculty salary cost-sharing component for the overhead rate proposal to the government.

Faculty academic-year salary certifications

These reports document academic-year effort for those few FAS faculty who are paid directly from grants between September and May.

⁹⁵ Available at <http://admin-apps.fas.harvard.edu/>

⁹⁶ See OMB Circular A-21 Section J.8, <http://www.whitehouse.gov/omb/circulars/a021/a021.html>.

Faculty summer salary certifications

These reports are used to document summer effort on grants and the corresponding direct compensation from grants for that effort. They are completed annually in the fall.

Non-faculty salary certifications

These reports are used to document the effort of students, postdoctoral fellows, research assistants, and staff who are paid directly from grants. The certifications must be signed on a monthly basis by Principal Investigators or, in rare cases, by designees who have day-to-day knowledge of the work these people are performing.

D. Subrecipient Monitoring

Federal funding agencies require that institutions working on subawards under Harvard prime awards follow all of the rules and regulations that would apply to prime awards at their own institutions. Further, the responsibility for monitoring compliance with those regulations devolves to Harvard as holder of the prime award. The Harvard subrecipient-monitoring policy provides guidelines for this process. This policy is available online at http://vpf-web.harvard.edu/OSP/managing/man_sub_recipient.shtml.

The policy mandates two kinds of monitoring: (1) making sure that the subrecipient institution complies with the auditing requirements of OMB Circular A-133, and (2) making sure that the subrecipient unit at that institution is managing the subaward correctly. The Office for Sponsored Programs takes care of collecting A-133 reports from subrecipient institutions, but it is the PI's responsibility to carry out the second part of the policy, principally by:

- routinely gathering and reviewing Technical Performance Reports;
- routinely reviewing invoices and expenses relative to budget;
- conducting periodic on-site visits, when necessary;
- initiating audits, when necessary.

Harvard rarely undertakes an audit of a subrecipient; however, if the Harvard PI has reason to question a subrecipient, an audit could be the appropriate course of action. More commonly, on-site visits are conducted in connection with ongoing collaborations to manage the research and administrative aspects of the sub-award. Review by the PI of progress reports and invoices from the subrecipient must occur regularly. Progress reports must be solicited, reviewed, and filed with the prime award documents. Invoices from the subawardee must be reviewed for allowability, reasonableness, and compatibility with the subaward budget, and the PI must authorize the release of funds ("OK to pay"). Copies of approved invoices must be kept on file with the prime award in case of an audit of that award here at Harvard.

E. Annual and Interim Progress Reports

Most sponsors require periodic reports of technical accomplishments during the life of an award. Most grants require, at a minimum, that an Annual Progress Report (APR) be filed. In many cases, the submission of the report is tied to the release of promised funding for the subsequent period, so timely submission is important. In accord with A-110, most federal sponsors set the due date for the APR 90 days prior to the anniversary date of the grant. Thus, the report for a grant with a July 1st start date would be due on March 31st. A good way to keep track of this deadline is to use FASSPAR Report H (History, UPAS, & Deadlines). Some sponsors, such as NSF, require that the APR be submitted electronically.

F. Interest on Non-federal Grant Balances

Under a policy established on July 1, 2002, the University pays simple interest (2% *per annum* in FY 04, 1% in FY 05) on a monthly basis on balances in non-federal grants and exchange accounts (Fund numbers in the range 200000 - 299999). Interest income is credited only to the main account, even for awards with multiple part-of accounts. The income may be used for project-related expenses during the life of the award and (often, but subject to any restrictive terms and conditions) for general expenses after the project ends. Interest is mixed in with all other income shown on the Period Expense Report but may be seen under income Object Code 4530 on the Detail Listing. The policy is described at http://vpf-web.harvard.edu/OSP/setup/set_ngne_interest.shtml and an FAQ is available at http://vpf-web.harvard.edu/OSP/setup/set_ngne_interest_faq.shtml.

G. Administrative Fees on Non-sponsored Accounts

Expenditures on current-use gift accounts (Fund numbers in the range 300000 - 399999) are assessed a fee of 2.6% at the end of each fiscal year to help defray the cost of running the Central Administration. Federal and non-federal sponsored accounts are not affected by this policy.

H. Interest on Deficit Sponsored Accounts

From a financial standpoint, the funds that cover deficit balances on sponsored accounts are essentially “loans” on the University's “Central Bank.” Policies are being developed under which “borrowers” in the Faculty of Arts and Sciences and other schools will be charged simple interest on these loans at the rate of 3% per year, paid monthly.

The FAS will receive a monthly report detailing accounts subject to interest charges for that month and will pass them on, at its discretion, to divisional deans and departments, who may in turn pass them on to individual PIs. The policy is expected to reduce “loans” by creating incentives for researchers and research administrators to avoid charges by timely action.

Beginning in March of 2004, interest is charged on **expired accounts** in deficit by more than \$1,000. Charges will not be assessed if journal transfers to erase the deficit are submitted within 90 days of the expiration date. Note that interest assessments may not be paid from federal grants or contracts.

Policy details and starting dates for any other categories have yet to be determined. Current policy and procedures are detailed on the OSP web site at http://vpf-web.harvard.edu/OSP/support/sup_def_interest.shtml.

X. CLOSING OUT AN AWARD

The last few weeks of a grant period are an important time in the life cycle of an award. Expenses must be reviewed for allowability, final charges must be posted, journal transfers must be made if the account is in deficit, and a number of reports must be filed. More detail on the process of closing out an award can be found on the OSP web site at http://vpf-web.harvard.edu/OSP/closing/clos_how_award.shtml.

A. Arriving at a “Final Figure”

Prior to the end date, all costs that were being charged to the grant automatically (i.e., salaries, blanket orders, telephone charges, stockroom charges, etc.) should be moved to other sources of funds. Until an account is “disabled” (see Section X.E below), the University does not have a system in place to prevent charges from being posted to that account, even if the grant is expired or overdrawn. Units that may be using an account number to place routine charges should be notified *well before the end of the grant* to avoid “surprise” charges that will have to be removed by journal transfer after the grant has expired.

The total amount of money spent on an award must be reported to the sponsor after the award has ended. Ideally, this “**final figure**” will equal the amount awarded, but it can also be less than the awarded amount. Toward the end of the grant period, OSP Financial Services contacts the grant administrator, and the two parties work collaboratively to close out the account. If the grant account is in deficit, journal transfers must be processed to move excess charges to an alternative source of funding. If there is a surplus of funds, other expenses may be identified that can be charged to the account legitimately. Only costs incurred before the end of the grant period may be charged to the account.

B. Final Cost-sharing Report

The University’s sponsored business rules recommend tracking mandatory cost sharing by using the Activity value from the sponsored award with the Fund value from the non-sponsored source of cost-sharing funds. This procedure allows for straightforward reporting and tracking of cost-shared expenditures. At the end of an award, total amounts and sources of all cost-sharing expenses, if any, must be submitted to OSP, using the University Cost Sharing Identification, Tub/Org Approval, and Reporting Form (see <http://able.harvard.edu/cgi-bin/forms.pl?dept=OSP>). The deadline for submission of this report is typically 90 days from the end date of the grant.

C. Final Financial Report

Once the account is settled to OSP’s and the department’s satisfaction, OSP can submit the final financial report, which is typically due 90 days after the close of the grant. This report tells the sponsor exactly how much money was spent on the award and commits the University to sending back to the sponsor (or to the U.S. Treasury in the case of federal awards) any unspent balance. External auditors look carefully at a sample of final financial

reports each year, examining each for accuracy and timeliness. Since these criteria are among those used to “grade” the University on its grants management, it is important that a “final figure” (see above) be provided to OSP well before the 90-day deadline so that OSP can file the final report in a timely fashion, with no need to revise the final figure at a later date. OSP will only include in the final figure expenditures or corrections that have already appeared in the General Ledger.

D. Final Technical and Patent Reports

Most sponsors require a **final technical report**, which is to be filed usually within 90 days of the end date of the grant. The particular format required by the sponsor is set forth in the terms and conditions of the award. The final technical report is typically submitted by the PI.

In addition to a final technical report, most federal sponsors (including the NIH and the NSF) require a **final patent report**. Usually the form asks for a list of any patents or discoveries that came out of the work conducted under the grant. The form is submitted to the sponsor by OSP after consultation with the PI and with OTTL (where records of invention and discoveries are recorded and tracked).

It is important to remember that the PI is responsible for obtaining a parallel set of reports from any subrecipients working on the award.

After the final technical report and the final patent report have been filed with the sponsor, OSP Awards Management should be notified so that they can proceed with disabling the account.

E. Account Disabling

Once an account is “disabled,” the system will reject any transaction posted to it. There are multiple stages of disabling, but OSP will not disable an account completely until all of the following criteria have been satisfied:

- the account has expired, and no further expenditures are pending;
- all reports (financial, technical, patent, and cost-sharing) have been filed;
- the “final figure” reported to the sponsor matches total expenditures; and
- the income from the sponsor matches total expenditures.

Until an account is disabled, it will continue to appear in the suites of financial reports available through AWS2 and FASSPAR. More information on the account-disabling process is available at http://vpf-web.harvard.edu/OSP/closing/clos_dis_valu.shtml.

XI. AUDITS

Audits are a fact of life. Often regarded as a distraction from the business of research, they do serve as an early-warning system, pointing out areas where practice may need to be fine-tuned to keep the university/sponsor relationship healthy. Adverse public exposure and financial penalties for non-compliance can cause considerable damage, and we all have an obligation to avoid them.

A. Internal Audits

Harvard's auditing department, Risk Management and Audit Services (RMAS), conducts audits of departments, centers, recharge facilities, software packages, etc., on a rotating basis, focusing on financial and operating controls, business processes, management effectiveness, and information systems controls and security. Audits are done cooperatively with the management of each unit, and results and suggestions are shared with affected employees. RMAS is also available as a resource for consultations on compliance with all the federal, state, and local regulations to which we are subject. More information on RMAS programs can be found at <http://vpf-web.harvard.edu/rmas/>.

B. External Audits

1. A-133

The most frequent and visible audit is the annual A-133 audit mandated by OMB Circular A-133, "Audits of States, Local Governments, and Other Non-profit Organizations."⁹⁷ This audit is conducted on behalf of the federal government by PricewaterhouseCoopers LLP (PwC). PwC selects federal awards to audit, typically from large research-intensive departments on a two-year rotation and smaller departments less frequently, usually auditing three FAS departments and one service center per year. They examine several areas, among them cost allowability and allocability, appropriateness of cost transfers, controls over equipment management, timeliness of effort reporting, financial reporting, processes for subrecipient monitoring, internal controls over payables, and billing rate processes for service centers. Over the course of the summer and fall, the FAS departments and service centers submit answers to a detailed questionnaire about their policies and procedures and provide backup paperwork supporting individual transactions that PwC selects for audit. Potential problem transactions are scrutinized even more carefully, and PwC issues "findings" on unresolved items. In the winter, FAS writes a "corrective action plan" that responds to PwC's findings, and a final document including both the findings and the response is submitted by PwC to DHHS, our cognizant agency, in the spring. After a short break, the process begins again.

2. Special Audits

Each large federal agency has an Inspector General's office and/or other auditing arm, which performs audits as the office deems necessary. Both the NIH and the NSF have been on-

⁹⁷ See <http://www.whitehouse.gov/omb/circulars/a133/a133.html>.

campus recently, investigating specific programs or departments or looking more broadly at policies and procedures. These audits typically involve reviews of grant files and paper or electronic files supporting individual transactions, as well as interviews of staff and faculty.

C. Best Practices for Audit Preparedness

Auditors will always find things to put in their reports, especially at an institution as large and decentralized as Harvard. However, there are ways to minimize audit exposure, and doing so is a responsibility that is shared among all members of the research community. Here are a few helpful reminders:

1. Direct Costs

Remember the three criteria for charging items to sponsored projects: allowability, allocability, and reasonableness? If an expense is allowable and benefits more than one project, apportion it among the affected projects according to an equitable, pre-determined allocation scheme. More details may be found in Section VII.A.

2. Cost Transfers

The best way to avoid cost transfers is to plan ahead. Expenses should not be posted to particular sponsored accounts unless they actually belong there. Communication between administrators and PIs is key in deciding the appropriate account(s) to charge for each expense. Allocation schemes should be set up in advance, if appropriate. Appointments for personnel should be planned as far in advance as is practical. FASSPAR has a Projection Spreadsheet that can serve as a powerful planning tool, even allowing projections beyond the current funding period, for personnel and all other types of expenditures. More details on cost transfers are in Section VIII.I.

3. Equipment Management

The FAS maintains a centralized database of capital equipment, and the auditors expect the information in that database to be accurate and up-to-date. Individual pieces of equipment are referenced by “tag number,” and tags should be attached to equipment items in a timely fashion. Location information is particularly important—if a piece of equipment is moved, loaned out, or decommissioned, the database must be updated. Forms are available for all important changes—see Section VIII.F for details.

4. Effort Reporting

PIs are responsible for attesting, *via* monthly reports for employees and stipendees and annual reports for themselves, that payments were appropriate to the effort expended on sponsored projects. Auditors look for timeliness, completeness, and assurance that the signer is either the PI or a designee who is even more directly involved in supervision of the research. More details in Section IX.C.

5. Financial Reporting

Auditors look for timeliness and accuracy in submission of final financial reports for sponsored awards. Since resubmissions of reports are taken as evidence of poor grants management, it is important that all closing transactions for grant accounts be posted before or soon after the end of the award period. More details in Section X.C.

6. Subrecipient Monitoring

Harvard's subrecipient-monitoring policy is in two parts. Under Part 1, OSP takes care of ensuring that subcontractors' own A-133 audits have not returned results that affect subcontracts under our awards. PIs and their administrators are responsible for Part 2, which involves collecting progress reports from subcontractors; verifying that invoices from subcontractors are sufficiently detailed, reasonable, and in keeping with budgets; performing occasional visits to subcontractors' sites; and (rarely) commissioning audits of subcontractors' policies, procedures, and internal controls. Progress reports, approved-for-payment copies of invoices, and reports of site visits should be kept on file for examination by auditors. More details in Section IX.D.

7. Internal Controls over Payables

Traditionally, the control of payables is documented by demonstrating that requisition or purchase order, invoice, and packing slip all match for each purchase. In departments that use ERP Power for their purchasing, receiving, and invoice payment, this matching is accomplished electronically. In other departments, copies of these three items should be filed for audit purposes.

7. Service Centers

Harvard's Service Center Policy (see http://vpf-web.harvard.edu/OSP/support/sup_spe_serv.shtml) lays out all of the procedures that must be followed in setting rates and monitoring income and expense for recharge centers whose annual expenditures exceed certain thresholds. As a matter of good practice, even smaller facilities should be managed within many of these guidelines. Auditors look closely at the financial aspects of true service center operation, since there are regulations in OMB Circular A-21 Section J.44⁹⁸ that must be adhered to. Departments with service centers should work with the FAS Financial Office to set rates annually, documenting the rate-setting process carefully and maintaining backup data on file for auditors' inspection.

⁹⁸ See <http://www.whitehouse.gov/omb/circulars/a021/a021.html>.

XII. WHERE TO GO FOR MORE INFORMATION

Many departments in FAS have individuals with extensive experience in developing and managing sponsored projects. Department administrators, laboratory directors, and financial officers can provide information on local resources and on the departmental review process.

The FAS Research Group, reporting to the Dean for Research, shares with departments many of the responsibilities associated with the preparation and approval of sponsored proposals, the management of awards, and training on all aspects of research administration. Specific responsibilities include:

<p>Dean Gallant 5-2628 drg@fas</p>	<p>Dean's review of sponsored proposals Dean's review of UPAS forms Conflict of interest and/or commitment issues Human subjects issues Animal protocol issues Overhead-rate and cost-sharing policies FAS Research Web page FAS contact for use of Harvard name issues Primary contact with OSP Awards Management</p>
<p>Alan Long 6-2491 aklong@fas</p>	<p>Monthly salary certifications Late cost transfers A-133 audit issues Service center issues Equipment management Overhead rate calculation Sponsored reporting (AWS2, HUDINI, FASSPAR) Purchasing using ERP Power Budgeting with FASSPAR Primary contact with OSP Financial Services</p>
<p>Sarah White 5-3224 sarah_white@harvard.edu</p>	<p>Identifying sources of support for research Working with departments, centers, and PIs on proposal preparation and post-award grant administration Summer and AY faculty salary certifications (FASERS) Faculty effort reporting (FASERS) A-21 direct costs interpretations Budgeting with the Sponsored Budget Tool</p>

Pre-award responsibilities (proposal preparation, submission, negotiation of terms, and account setup) at the Office for Sponsored Programs are handled by a team of Assistant and

Associate Directors, Sponsored Research Administrators, and staff assistants. Susan Roudebush (susan_roudebush@harvard.edu, 6-3130) is FAS team leader, and departmental assignments are available at http://vpf-web.harvard.edu/OSP/funding/fund_contacts.shtml

Post-award responsibilities (financial transactions, account closeout, and reporting) at OSP are handled by the Financial Services University Area Team. Judy McSweeney (judy_mcsweeney@harvard.edu, 6-2513) is team leader for the University area, working with a staff of Assistant Team Leaders, Financial Analysts, and Accounting Assistants. Departmental assignments are available at http://vpf-web.harvard.edu/OSP/managing/man_contacts_fas.shtml.

The following online resources have been cited frequently throughout this manual.

FAS Research Conduct and Administration:
<http://www.fas.harvard.edu/~research>

Grey Book (*Principles and Policies that Govern Your Research, Instruction, and Other Professional Activities*):
<http://www.fas.harvard.edu/~research/greybook>

Office for Sponsored Programs (OSP):
<http://vpf-web.harvard.edu/OSP/>

Office for Technology and Trademark Licensing (OTTL):
<http://www.techtransfer.harvard.edu>

Office of the General Counsel (OGC):
<http://www.ogc.harvard.edu/>

ABLE (A Better Learning Environment) — Extensive information about University financial systems and links to many online forms:
<http://able.harvard.edu/>

XIII. COMPENDIUM OF USEFUL TERMS

A-21 – A Circular set forth by the Office of Management and Budget (OMB) that identifies the types of costs—direct and indirect—allowable on and allocable to federally sponsored research projects. This publication contains the most restrictive cost principles that federal agencies may apply to their projects; agencies may be less restrictive if they wish. A-21 definitions of the most popular categories of “activities,” or functions of an institution that are relevant to sponsored research, can be found at <http://able.harvard.edu/coa/qr/ca503q>. The entire Circular can be found at <http://www.whitehouse.gov/omb/circulars/a021/a021.html>.

A-110 – A Circular from OMB that describes the required minimum management systems that an institution must have in order to administer federal grants appropriately (e.g. a property management system, a procurement system, etc.). This Circular describes the appropriate systems for administering federal grants and cooperative agreements, but not federal contracts. As with A-21, described above, agencies cannot be more restrictive than these regulations without a “deviation” from OMB. The Circular can be found at <http://www.whitehouse.gov/omb/circulars/a110/a110.html>.

A-133 – A Circular from OMB setting forth the audit requirements that educational institutions and other nonprofit institutions must follow in the administration of their federal awards. Institutions receiving more than \$500,000 in federal funds are subject to annual review (A-133 audit) under this Circular, which can be found at <http://www.whitehouse.gov/omb/circulars/a133/a133.html>.

Action Memo – Action Memos are produced by the Office for Sponsored Programs and distributed to the PI and Departmental Administrators who will have post-award responsibility for managing an award. Action Memos are issued whenever an “official” change is made to the award (i.e., more or less money; more or less time; internal approval of pre-award or advance account status; or an administrative change such as the addition of a new Subactivity or correction, etc.). The Action Memo provides a summary of the account string information, as well as funds awarded to date and funds anticipated.

ADs/SRAs – Assistant Directors and Sponsored Research Administrators are the individuals in OSP Awards Management who are responsible for proposal review, sponsor contact, faculty assistance, and grant and contract negotiation. Each FAS department or center has a pre-award AD or SRA. See http://vpf-web.harvard.edu/OSP/funding/fund_contacts.shtml for FAS departmental assignments.

Affirmation of Awareness – FAS appointees are required to affirm, at regular intervals, that they are familiar with FAS and University policies relevant to their professional activities, at <http://admin-apps.fas.harvard.edu/disclosure/index.html>. The process includes required financial disclosures for investigators on NSF- and PHS-funded awards.

Allocability – One of three basic conditions, per A-21, that must be met in deciding whether a particular expenditure is appropriate to a particular federal account. “Is the charge allocable to the project?” means “did the purchase of this good or service relate specifically to the project

being charged?” [N.B.: This concept may also apply to non-federally sponsored projects, on a per-award basis.]. Also see **Allowability** and **Reasonableness**.

Allowability – One of three basic conditions, per A-21, that must be met in deciding whether a particular expenditure is appropriate to a particular federal account. “Is the charge allowable?” means “do federal regulations allow the use of federal funds for the purchase of such an item?” Sections C.2 and C.4 of [A-21](#) discuss the allowability of individual types of costs in great detail. [N.B.: These concepts may also apply to non-federally sponsored projects, on a per-award basis.]. Also see **Allocability** and **Reasonableness**.

Authorized Institutional Signatory – An employee of the University authorized to sign legal documents on behalf of its legal entity, the President and Fellows of Harvard College. Authorized signatures on FAS proposals and sponsored research agreements are provided **only** at the Office for Sponsored Programs; PIs and department or other FAS administrators may not sign on behalf of the President and Fellows.

Award – A generic term for any type of sponsored project, usually, though not always, used when the promise of support has been received.

AWS2 – Administrator's WorkStation 2 is one of Harvard's Web-based tools for generating reports on financial information in Harvard's Data Warehouse. AWS2 gives access to a variety of commonly used financial, sponsored, budget, procurement, and receivables reports. These reports play a key role in financial management of research funding. See http://able.harvard.edu/aws/aws2_index.shtml.

Carry-forward – Unobligated balances on sponsored awards can sometimes be transferred to subsequent funding period(s). Sponsors have differing policies regarding this practice, which are reflected in the terms and conditions of each award.

Chart of Accounts – An accounting term that refers to an entity's numerical coding system for recording financial transactions. Harvard's chart of accounts provides the organizing framework for budgeting, recording, and reporting on all University financial transactions. The chart consists of 33 digits organized into 7 segments. The digits in each segment stand for a specified property described in a table organized by a standard naming convention. See http://able.harvard.edu/coa/coa_index.shtml.

Closeout – All administrative actions and work on an award have been completed. Formal closeout of awards usually requires, at a minimum, that final technical and final financial reports be submitted to the sponsor. Depending upon the sponsor, other documents (such as a final invention/patent report and/or equipment reports) may be required.

Cognizant Agency – Recipients of more than \$25 million in federal assistance are assigned to a “cognizant agency” for audit supervision. Typically, this function falls within the purview of the cognizant agency's Office of Inspector General for Audits. The cognizant agency represents the federal government in negotiations with educational institutions in areas such as setting indirect cost rates and resolving audit findings. The cognizant agency for non-profit organizations is usually determined by calculating which federal agency provides the most grant funding. Harvard's primary source of federal support comes from the NIH, so our cognizant agency is the Department of Health and Human Services (DHHS).

Contract – An agreement for procurement of a particular service (e.g. teaching a course) or product (a report at the end of a research project), in which an institution is paid to help the sponsor reach a particular goal. Typically, contracts have a set of “terms and conditions” to which both parties (sponsor and institution) must agree before work can begin. Beginning work prior to having an agreement is considered to constitute acceptance of terms.

Cooperative Agreement – An arrangement under which there is a transfer of funds from the sponsor to the institution, to assist the institution in reaching a particular institutional goal. Very similar to a grant, except that a cooperative agreement assumes a significant level of sponsor participation in the project.

Copyright – A legal protection for an original piece of work, such as art, film, software, or writing. At Harvard, the University holds any patents that come about as a result of sponsored research, but the individual faculty member often holds the copyrights. Sponsored research agreements may specify other, or additional, provisions. Questions about copyright may be addressed to either the Office for Technology and Trademark Licensing (OTTL) or the Office of the General Counsel (OGC). The University’s *Statement of Policy in Regard to Inventions, Patents, and Copyrights* is at <http://www.techtransfer.harvard.edu/PatentPolicy.html> and the OGC has a guide on copyright and fair use (PIN login required for access) at <http://www.ogc.harvard.edu/publications/copyright.php>.

The Corporation – The seven-member board, to which the President reports, that is ultimately responsible for running Harvard University. The Corporation is similar to the Board of Trustees at other institutions, although the Corporation meets more frequently—approximately once a month throughout the academic year.

Cost Sharing – Costs of a project that are not paid for by the sponsor. As far as the federal government is concerned, “cost sharing” and “cost matching” are synonymous. At Harvard, the term “matching funds” refers to explicit payments made to fulfill specific requirements laid out in the program announcement—usually a fixed percentage of the overall cost of the project, often paid by split-coding transactions. Cost sharing using University funds or resources has programmatic and financial implications for the University and is discouraged unless required by the sponsor.

Cost Transfer – A procedure by which departments, by journal voucher, transfer costs from one account (of any type) to a *federal* sponsored account in order to allocate costs properly. These changes should always be made in a timely fashion, i.e., within 90 calendar days of the 15th of the month following the month of the original transaction. Note that, except in certain special cases, even routine journals transferring costs to a federal account after the month in which the original charge was posted must be accompanied by a cost transfer form. See http://vpf-web.harvard.edu/OSP/managing/man_cos_transfer.shtml.

CV – “*Curriculum vitae*,” literally the “course of life,” also referred to as a résumé or biographical sketch. Normally, CVs are accompanied by lists of publications. CVs of the PI and any other faculty members who will be working on a proposed project will be included with the proposal that is submitted to the funding agency. Many sponsors have specific formatting and page-length restrictions.

DARPA – Defense Advanced Research Projects Agency – The DARPA mission is to develop imaginative, innovative, and often high-risk research ideas offering a significant technological impact that will go well beyond the normal evolutionary developmental approaches; and, to pursue these ideas from the demonstration of technical feasibility through the development of prototype systems. Although proposals are submitted directly to DARPA, non-technical post-award administration is usually through another DoD agency. See <http://www.darpa.mil>.

Dean's Cover Sheet – Prior to submission, research proposals require a series of reviews. This process assures OSP Awards Management that the appropriate academic and administrative reviews have taken place within the school from which the proposal is received. These approvals are indicated on the Dean's Cover Sheet, an internal document that is attached to all sponsored proposals. Without Dean's approval, a proposal will not be forwarded to the sponsor. See <http://www.fas.harvard.edu/~research/cvrsht.html>.

Disallowed Costs – Expenses determined unallowable in accordance with cost principles or terms and conditions of award.

Detail Listing – A listing that shows each individual transaction posted to an account during a specified time period. These reports are part of the AWS2 suite of reports (see above). See <http://able.harvard.edu/repcat/rc001f/>.

Direct Costs – Those expenses incurred during the course of a research project that can be attributed *directly* to that project. Examples include salaries of researchers, equipment, and scientific supplies.

Disclosure Form – Applicants for NSF or PHS funding must have a current Disclosure Form on file, indicating all significant financial interests that relate to research for which funding is sought. (The form is ordinarily completed online as part of the Affirmation of Awareness, above.) See <http://www.fas.harvard.edu/~research/Cofl.html>.

DoD – Department of Defense – An umbrella title used to describe all the agencies that are under the Secretary of Defense. These include the Office of Naval Research ([ONR](#)), the Army Research Office ([ARO](#)), the Air Force Office of Scientific Research ([AFOSP](#)), and a wide variety of smaller agencies (for example, the Defense Supply Service).

DoE – Department of Energy – A federal agency that supports energy-related research in such areas as energy conservation, nuclear waste management, energy technologies, etc. See <http://www.sc.doe.gov/grants/grants.html> for the DoE grants and contracts web site.

EH&S – Environmental Health and Safety. Many organizations delegate responsibility for protecting workers and the community from harm to their environment, health, and safety to a single unit. University programs overseen by Harvard's EH&S department include biosafety, environmental health, pest control, wastewater management, food safety and sanitation, industrial hygiene, occupational safety, and radiation protection. See http://www.uos.harvard.edu/information/dep_env.shtml.

EPA – Environmental Protection Agency – A federal mission agency that sponsors research in areas related to the study of the environment. See <http://www.epa.gov/epahome/doingbusiness.htm>.

EPRI – Electric Power Research Institute – A non-profit organization, funded by the major utilities, which supports a number of projects at the University. EPRI contracts are typically quite complex and require extensive negotiation. See <http://www.epri.com>.

Equipment – Items or fabrications that have a useful life of more than one year and a value of more than \$5,000. Equipment charges on federal sponsored awards do not bear overhead. See http://vpf-web.harvard.edu/OSP/support/sup_spe_equip.shtml

Expanded Authorities – The permission that many federal agencies have given research universities to approve certain types of changes to grants without obtaining the sponsor’s authorization. These changes include pre-award spending, no-cost extensions, and rebudgeting of restricted expense classes such as equipment.

Export Controls – The federal government has a number of controls in place that limit the export of technical data, goods, and commodities to other countries. Certain types of goods and technologies are especially sensitive, particularly those with potential military applications (see **ITAR**), and certain countries are under economic embargoes that influence both direct exportation and “transshipment” through another country. Regulations in this area are complex, and the Office of the General Counsel (Ellen Berkman, 6-1108) should be consulted before shipping materials overseas.

FAR/DAR/FPR – Federal Acquisition Regulations, Defense Acquisition Regulations, and Federal Procurement Regulations – Documents that set forth all the rules that federal agencies must follow whenever they acquire *anything*. These rules cover the “procurement” of basic research *via* contracts. FAR covers all federal procurement. Some agencies have addenda, e.g., DEAR (Department of Energy Acquisition Regulations).

FASSPAR – FAS Sponsored Project Accounting Reports – a Web-based integrated post-award grant management system for the FAS. FASSPAR provides a suite of canned and interactive reports that allow PIs and grant managers to enter and adjust the budget of record (the budget transmitted to the General Ledger that appears in column B of the Period Expense Report), track purchase orders and equipment, monitor grant balances, maintain logs of award histories and report due dates, and make financial projections of anticipated grant activity. Access to FASSPAR is through <http://admin-apps.fas.harvard.edu>.

FastLane – A Web-based system for conducting all grant-related business with the National Science Foundation. See <http://fastlane.nsf.gov>.

FDP – Federal Demonstration Partnership – A consortium of ninety universities, ten federal agencies, and several affiliate organizations that works with the OMB (Office of Management and Budget) to streamline the administration of federal sponsored awards. Expanded Authority is an example of a simplification that all institutions have been allowed to use after a successful demonstration by an FDP pilot project. See <http://thefdp.org> for more details.

Finding – An action that appears not to comply with regulations and is deemed sufficiently significant to warrant mention in an auditor’s report.

Fiscal Year – A one-year period, frequently different from the calendar year, that is treated as a single entity for budgeting and accounting purposes. At Harvard, fiscal years run from July 1st through June 30th, with the convention that the year that ends on June 30, 20xx is called “FY xx.” Thus the budget year for a sponsored award will coincide with the University fiscal year only if the award happens to start on July 1st.

Flowdown – When subcontracts and subawards are created, the terms of the prime award must be incorporated into these documents—that is, the terms “flow down” from the prime award to the subaward.

Fringe Benefits – Each non-student employee of the University receives certain benefits in addition to his or her salary, e.g., pension benefits, life insurance, medical coverage, and tuition assistance. The department in which the person works (or the sponsor, if the salary is paid by sponsored funds) pays the costs of these benefits; the amount is a percentage of the salary. See http://vpf-web.harvard.edu/OSP/support/sup_cur_frates.shtml for currently-approved fringe benefit rates.

FTE – Full-Time Equivalent – The portion of a person’s time paid for by an employer. A person working full-time is considered to be 1.0 FTE.

Fully Executed – A contract or grant document is fully executed when it has been signed by all the parties for which signature is required. Typically, OSP will not establish an account until all parties have reached formal agreement.

Gifts – Gifts are funds that are provided to support University programs and that do not meet any of the five criteria established for sponsored project accounts from non-federal sources (i.e., there are no proposal terms, scholarly terms, deliverables, fiduciary responsibilities (no financial reports are required by the sponsor), or property terms). See http://vpf-web.harvard.edu/OSP/funding/fund_gr_policy.shtml.

Grant – Funds transferred from a sponsor to an institution, in order to assist the grantee in reaching an institutional goal.

Grants.gov – This site allows organizations to find competitive grant opportunities from all grant-making (as opposed to contract-issuing) federal agencies. In the future, this system will be used for electronic proposal submission, supplanting previous ERA initiatives by grant-making agencies.

Grey Book – An FAS publication entitled “*Principles and Policies that Govern Your Research, Instruction, and Other Professional Activities*,” the Grey Book is a collection of documents that contain important policies governing the professional conduct of faculty members and other academic appointees.

IDC (Indirect Costs) – Also known as “overhead” or “o/h” and more recently as “Facilities and Administrative” (or F&A) costs – Those costs that cannot be identified specifically with a particular project (e.g., heat, light, etc.) yet are clearly costs incurred in doing the research. The Cost Analysis unit in OSP calculates, forecasts, and negotiates the indirect cost rate with DHHS. Indirect costs are recovered by applying the rate to the overhead-bearing direct costs for a project. See http://vpf-web.harvard.edu/OSP/support/sup_cur_farates.shtml.

Intangible Property – Trademarks, copyrights, patents, loan notes, and lease agreements.

ISRA – Industry Sponsored Research Agreement – an agreement that is drawn up between the University and a corporate sponsor to support research. For more information see <http://www.techtransfer.harvard.edu/ISRA.html>.

ITAR – International Traffic in Arms Regulations, the body of U.S. law governing export of munitions and defense technology. This law can complicate negotiation of federal awards. Cryptology and some types of computer programming are included under the definition of munitions. See <http://www.aau.edu/sheets/ITAR.html> for the ways in which this law can affect University research. Ellen Berkman in the Office of the General Counsel (6-1108) is the primary on-campus resource.

Journal – short for “journal voucher” – A document generated to effect a change in an already existing entry in the accounting system. Usually prepared by departments, journals sometimes are used to transfer costs into federal accounts and may thus fall under the “Cost Transfer Policy.”

Letter of Credit – A payment mechanism that allows the institution to request a wire transfer of cash from the federal sponsor’s treasury account in order to cover immediate disbursement needs (i.e., the costs) of the research projects supported by that sponsor. The institution must do at least \$120,000 of business with the agency per year in order to qualify for this payment mechanism. Non-federal sponsors occasionally will set up letters of credit as well.

License – The legal mechanism by which one party can obtain the right to use someone else’s patent or copyright, usually by paying licensing fees. At Harvard these fees are primarily returned to the inventor and the inventor’s department and school, with the University keeping a smaller portion, according to the University’s royalty sharing policy. See <http://www.techtransfer.harvard.edu/RoyaltySharing.html>

Misconduct – The NSF and most other federal agencies define research misconduct as “fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.” See 65 Fed. Reg. 76260-76264 (December 6, 2000) and http://www.aamc.org/advocacy/library/washhigh/2002/032902/_8.htm. DHHS has not yet adopted the standard language, but uses a similar definition: “‘Misconduct’ or ‘misconduct in science’ means fabrication, falsification, plagiarism, or other practices that seriously deviate from those that are commonly accepted within the scientific community for proposing, conducting, or reporting research. It does not include honest error or honest differences in interpretations or judgments of data.” See <http://ori.dhhs.gov/html/misconduct/phsofficethatdealwith.asp>.

MTA – Material Transfer Agreement – An agreement negotiated by the OTTL to govern the transfer of materials (most frequently of a biological nature but can also include other materials). See <http://www.techtransfer.harvard.edu/InfoForIndustry.html#MaterialTransfer>.

MTDC – Modified Total Direct Costs – For the purposes of consistency across research institutions and federal sponsoring agencies, regulations have been issued on the way to calculate indirect costs. These regulations call for the establishment of a “base” to which the overhead rate can then be applied. This base excludes certain direct costs (e.g., equipment,

participant support, and subcontracts); hence it is a *modified* total direct cost base. Most sponsored projects are charged overhead on the MTDC base rather than on the Total Direct Costs (TDC) base.

NASA – National Aeronautics and Space Administration. NASA funds basic research through NASA Headquarters as well as through its centers. Proposals are typically submitted to the individual centers: Ames Research Center, Dryden Flight Research Center, Glenn Research Center, Goddard Space Flight Center, Jet Propulsion Laboratory, Johnson Space Center, Kennedy Space Center, Langley Research Center, Marshall Space Flight Center, and Stennis Space Center. See <http://www.nasa.gov/about/research/index.html>.

NEA – National Endowment for the Arts – A federal agency whose grants often support only part of the total cost of the project. Substantial cost sharing may therefore be required. The mission of the NEA is to “enrich our Nation and its diverse cultural heritage by supporting works of artistic excellence, advancing learning in the arts, and strengthening the arts in communities throughout the country.” See <http://www.nea.gov>.

NEH – National Endowment for the Humanities – Another federal agency whose awards are primarily grants. NEH has a broader mandate than NEA and its grants support many non-scientific areas throughout the University. See <http://www.neh.gov>.

NIH/PHS/DHHS – National Institutes of Health/Public Health Service/Department of Health and Human Services – The Department of Health and Human Services is a cabinet-level federal agency, with many areas under its purview, including Medicare, Medicaid, Welfare, and the Public Health Service. Under the Public Health Service are a variety of agencies, of which the largest is the National Institutes of Health. There are 27 Institutes⁹⁹ within the NIH, which as a group provide more than two-thirds of Harvard’s federal funding. The DHHS is, therefore, Harvard’s “cognizant agency.” See <http://www.nih.gov>.

Non-federal – Every entity that sponsors projects and is not part of the U.S. federal government can be called non-federal. This category includes foundations, corporations, other universities, foreign governments, state governments, and others. Subcontracts to Harvard by non-federal entities to perform federally-sponsored work are called “federal-once-removed.”

No-cost Extension – An extension of the period of performance of an award, with no additional funding. On federal awards, using the UPAS form, the PI may request a one-time extension of the expiration date of an award for up to 12 months. Requests must be made at least 10 business days prior to the expiration of the grant. The Agency must be notified (by OSP) that the extension has been approved. When requesting a no-cost extension, the PI must report the approximate remaining balance and explain why additional time is needed. Extensions may not be granted solely to spend unobligated balances.

Non-federal sponsors may also allow no-cost extensions; these requests must always be made by the PI in the form of a letter approved by the Dean and countersigned by an Approved University Signatory at OSP.

⁹⁹ See <http://www.nih.gov/icd>.

NRSA – Ruth L. Kirschstein National Research Service Award (NRSA) – A “Research Training Grants” fellowship program sponsored by NIH that pays the living expenses of pre- and post-doctoral fellows while they pursue research work in a health-related field. See <http://grants1.nih.gov/training/nrsa.htm>.

NSF – National Science Foundation – A federal agency that sponsors research primarily through grants “for the public good,” that is, without a particular product or goal in mind. The NSF is the second largest source of funding for the FAS. All business communication with the NSF is done electronically through the [FastLane](http://fastlane.nsf.gov) system. See <http://fastlane.nsf.gov>.

OMB – Office of Management and Budget – A federal agency that oversees the budget and the Executive Branch agencies, ensuring that federal funds are managed and spent appropriately. See <http://www.whitehouse.gov/omb>.

ONR – Office of Naval Research – A part of the Defense Department that supports research in areas that are of interest to the defense agencies, particularly the Navy. ONR provides support to Harvard through its “basic research” programs, since faculty rules do not allow secret research to be performed on campus and ONR “applied research” programs have confidentiality requirements. Harvard has an ONR Resident Representative (ONRRR), to whom other DoD agencies and NASA have delegated responsibility for basic post-award grants management. See <http://www.onr.navy.mil/default.asp>.

OP & HP Subcontracts – “Other prime” and “Harvard prime” subcontracts – “Other prime” refers to a subcontract that is issued from another institution to Harvard, usually under a project supported with federal funds. “Harvard prime” refers to a subcontract that Harvard issues to another institution, for them to do a portion of a (usually) federally-sponsored project.

OSP – Office for Sponsored Programs. OSP is responsible for pre-award sponsored-research-related issues for the FAS and various other Harvard schools (through Awards Management), as well as post-award grants administration for the entire University (through Financial Services). See <http://vpf-web.harvard.edu/OSP/>.

OTTL – Office for Technology and Trademark Licensing – The University office responsible for negotiating with all external parties for rights to inventions or copyrights to which the University holds title. See <http://www.techtransfer.harvard.edu/index.html>.

Overhead – see **Indirect Costs**.

Participation Agreement – A legal document, to be signed by each person involved with sponsored projects at the University, which spells out the University’s position on ownership of inventions, publications, and other potentially licensable results of research. A signed participation agreement must be on file in OSP Awards Management for each PI before his/her account can be set up; PIs are also responsible for ensuring that members of their research teams have filed them. See <http://www.techtransfer.harvard.edu/ParticipationAgree.html>.

Patent – Legal recognition issued by the US government, allowing the inventor to prevent others from making or using his/her invention without permission. US utility patents last 20 years from the date the patent application is filed; US design patents last 14 years from the

date of issue. Others who wish to use the patent holder's invention must obtain a "license" (see above) to do so. If the item to be protected is a written or artistic work (or sometimes computer software), a "copyright" (see above) is the appropriate legal protection.

PER – Period Expense Report – A summary report from the University's accounting system showing monthly and cumulative expenditures on a sponsored project account totaled by Object Code. Together with detail listings, these reports represent the basic working documents used by everyone at the University to monitor the financial positions of sponsored projects. These reports are part of the AWS2 suite of reports (see above).

Personal Property – All property, tangible (e.g., equipment) or intangible (e.g., patents, intellectual property), except real property.

Peer Review – The process by which competing proposals are reviewed and compared on the basis of scientific or intellectual merit by other investigators or "peers" rather than by agency administrators. Different federal agencies use peer review at different points in the proposal process, and with differing levels of involvement by experts both within and outside the agency.

PHS – Public Health Service – A division of the Department of Health and Human Services. PHS encompasses nine agencies, which include the CDC (Centers for Disease Control and Prevention), the FDA (Food and Drug Administration), and the NIH (National Institutes of Health). A useful overview is available at <http://www.hhs.gov/pharmacy/overview.html>.

PI – Principal Investigator – The individual officially responsible for the conduct of a sponsored project. On research projects, the PI is usually a faculty member; on other types of awards, such as financial aid, the PI may have an administrative appointment (see Section III.C).

PI Certification Form – A form filed with all NSF and PHS proposals, confirming that the PI and other investigators have made all required financial disclosures. See <http://www.fas.harvard.edu/~research/Cofl.html>.

PO – Purchase Order – A form representing an authorized request for the purchase of goods or services from a particular vendor. In many procurement systems, a PO is synonymous with an approved "requisition." Invoices from vendors correlate with POs by "PO number," typically supplied to vendors when orders are placed. POs are also attached to subcontracts that are drawn up by OSP Awards Management. In many FAS departments, POs are generated automatically by the ERP Power purchasing system upon approval of requisitions created using that system. ERP Power is also used to pay invoices electronically *via* a feed to Central Accounts Payable.

Pre-Award Account – An account established to allow the PI to incur pre-award costs up to 90 calendar days prior to the start of a federal award, or more than 90 calendar days with the prior approval of the federal awarding agency. All pre-award costs are incurred at the department's risk (i.e., the federal awarding agency is under no obligation to reimburse such costs if for any reason the recipient does not receive an award or if the amount awarded is less than anticipated and inadequate to cover such costs). Such requests are made using the UPAS form, which requires Dean's approval *via* the Dean's Cover Sheet.

Program Officer – The PI’s primary contact at a sponsoring agency.

Project Director – A term used interchangeably with “Principal Investigator.”

Project Period – The period between the start and end dates of an award.

Program Income – Income generated or earned as a result of an award. This income must be tracked and reported to the sponsor, who may determine the disposition.

Property – Real property, and tangible and intangible personal property.

Proposal – A formal request to a sponsor asking for funding or other assets (e.g. equipment) in support of a research or training program. A proposal usually consists of two main parts (a technical narrative and a budget) and several ancillary sections. Most proposals are submitted to sponsors by PIs who seek support for programs they have designed. Others are solicited by sponsors (see RFP).

Real Property – Land and buildings, including improvements and attachments.

Reasonableness – One of three basic conditions, per A-21, that must be met in deciding whether a particular expenditure is appropriate to a particular federal account. “Is the charge reasonable?” means “do the nature of the goods or services acquired, and the amount paid for those goods or services, reflect the actions of a prudent person at the time the cost was incurred?” More detail can be found in Section C.3 of A-21.¹⁰⁰ [N.B.: This concept may also apply to non-federally sponsored projects, on a per-award basis.] See **Allowability** and **Allocability**.

Records Retention – The process of storing records for a period of time. Most sponsors require that records be retained for auditing purposes, usually for three years from the end date of the award. The University recommends retaining them for six years, to comply with both federal and state regulations. See <http://grs.harvard.edu/index.shtml> (accessible from Harvard computers only) for information.

Reps & Certs – “Representations and Certifications” – Legal documents prepared by OSP Awards Management that *represent* and *certify* that the University meets certain conditions for funding. These documents must be filed with the sponsor (either with the proposal or after the sponsor has given the proposal preliminary approval) prior to making the award.

Requisition – A form used in many procurement systems to enumerate the items to be included in a purchase request. See also **PO – Purchase Order**.

RFP – Request for Proposals – An official notification that an organization is interested in purchasing goods or services. Federal sponsored research RFPs are published in *Federal Grant Opportunities* (<http://www.fedgrants.gov>) and *Federal Business Opportunities* (<http://www.fedbizopps.gov>) as well the *Federal Register* by interested federal agencies. RFPs may also be issued by non-governmental entities. An RFP describes the scope of work,

¹⁰⁰ See <http://www.whitehouse.gov/omb/circulars/a021/a021.html>.

timing of proposal submission, etc. Ordinarily, RFPs that stipulate terms and conditions result in contracts, rather than grants (see **Contracts**).

ROI – Report of Invention – A form used by inventors to describe an invention. OTTL reviews the ROI before deciding whether to file a patent application. See <http://www.techtransfer.harvard.edu/ROIForm.html>.

SBIR/STTR – Small Business Innovation Research/Small Business Technology Transfer – SBIR and STTR are government programs that encourage innovation by mandating that the large sponsoring agencies fund *cooperative* R&D projects involving small businesses and research institutions. For a listing of all SBIR/STTR opportunities, see <http://www.sbaonline.sba.gov/SBIR/>

Signature Authority – see **Authorized Institutional Signatory**.

Subaward – Award made by recipient to eligible subrecipient; also called a subcontract. Subawards may be made to Harvard by other institutions or by Harvard to other institutions who will participate in a research project. In either case, the terms of the prime award will be passed on (“flow down”) to the recipient of the subaward through a formal document that governs the academic and administrative aspects of research thereafter, unless amended by mutual agreement of the parties.

Subrecipient – Legal entity to which a subaward is made. The subrecipient is accountable to the recipient, the entity to which the prime award is made.

Suspension – Action that temporarily stops work and suspends funding pending a corrective action.

TDC – Total Direct Costs – The sum of all charges that are clearly associated with a sponsored project—the salaries of people working on it, the cost of necessary supplies and equipment, etc. TDC is often used to identify the costs on which overhead will be charged, i.e., an overhead rate of 8% TDC on an account means that all of its direct charges will be assessed 8% overhead. Compare with MTDC, above.

Technology Transfer – The various mechanisms by which the University “transfers” to industry products of research that have potential market applications. Usually, the researcher and the University receive some recompense (i.e., licensing fees). See <http://www.techtransfer.harvard.edu/Research-Discovery.html>.

Terms and Conditions – The various rules and regulations under which a research project must be conducted. They are normally included in both granting and contractual documents. The sponsor, the researcher, and the researcher’s institution must agree to terms and conditions before the work can proceed.

Tuition Remission – Partial or complete waiver of tuition for certain populations of students. Harvard does not have tuition remission.

Termination – Cancellation of sponsorship in whole or in part prior to completion date.

Third-Party In-Kind Contribution – A non-cash contribution to a project by a non-federal third party (e.g., the donated professional service of a lawyer or another skilled professional). Such contributions may sometimes be treated as cost sharing.

TSCA -- The Toxic Substances Control Act, administered by the U.S. Environmental Protection Agency to “ensure that the human health and environmental effects of chemical substances are identified and adequately addressed prior to production or transport of those substances.” More information is available on the Environmental Health and Safety website at http://www.uos.harvard.edu/ehs/env_pro_tsc.shtml.

University Area – Harvard has three separate indirect-cost rate negotiations with its cognizant agency, DHHS: one for the Medical Area (Medical and Dental Schools), one for the School of Public Health, and a third for the “University Area,” all other units including the FAS.

Unobligated Balance – Funds not spent or committed at the end of an award period.

Unrecovered Indirect Cost – The difference between the amount awarded and the amount that would have been awarded if the full federally-negotiated indirect cost rate had been included. Unrecovered indirect costs may sometimes be credited toward cost-sharing or matching requirements.

UPAS – The University Prior Approval System – Under A-110 (Section 25, Revision of Budget and Program Plans), certain federal agencies (NIH, NSF, NASA, DoD, USDA, Department of Education, NEH, DARPA, ONR, AFOSP, ARO, NOAA, EPA, and USAID) grant universities “expanded authority” to approve certain administrative actions without agency approval. At Harvard this prior approval system is called “UPAS” (University Prior Approval System), and requests are submitted on a UPAS form. The eligibility chart lists the actions permitted under the UPAS system and the agencies that allow the use of UPAS. UPAS may approve actions that include pre-award costs, one-time no-cost extensions (for up to a year), and rebudgeting funds into restricted categories (e.g. equipment); actions must be reviewed and approved by the department, the Dean’s representative (Dean Gallant, Science Center 130), and OSP. For a copy of the UPAS form and Eligibility Chart see http://able.harvard.edu/forms/OSP_upas1.pdf.

Vouchers – A general term for various forms that authorize the payment of bills or the transfer of money from one account to another. Many vouchers are now electronic.

Whistleblowing – Informing appropriate officials of irregularities in the conduct of University business. As noted in Section II.G, every individual associated with the research enterprise is responsible for reporting conduct that appears to be illegal or improper. Federal and state laws protect from retaliatory dismissal or harassment individuals who bring incidents of fraud or misconduct to the attention of appropriate officials.

Wire Transfer – A banking procedure for moving cash overnight from one bank to another, allowing essentially immediate reimbursement of claims. Frequently used by foreign sponsors and by federal sponsors for letters of credit (see above) and monthly vouchers.

Withdrawal – A request to a sponsor that a proposal be removed from consideration. Typically, the sponsor will require a written request signed by both the PI and an OSP signatory.

Work for Hire – In the context of copyright, these are works (this Compendium is an example) created by an employee and owned by the employer.

Appendix 1: Sample Subcontract Coversheet**Subcontract Proposal**
Submitted to**From**
President and Fellows of Harvard College**Title:** *“your proposal title here”*

This proposal is submitted pursuant to:

Requested Amount: \$**Proposed Duration:** months**Proposed Starting Date:****University DUNS Number:** 00-196-3263: **CAGE Code:** 82368: **TIN:** 04-2103580N**Most Recently DHHS Negotiated Rate Agreement:** 21 January 2004**Statement of Intent:** The appropriate programmatic and administrative personnel involved in this grant application are aware of the **sponsor’s** policies and are prepared to establish the necessary inter-institutional agreement(s) consistent with those policies.**Principal Investigator:** _____*signature* (date)Professor
Department of
Harvard University
Street
Cambridge, MA 02138
Phone: (617) 49
FAX: (617) 49
e-mail: @.harvard.edu**Authorized Institutional Signatory:** _____*signature* (date)Director
Office for Sponsored Programs
1350 Massachusetts Avenue
Cambridge, MA 02138
Phone: (617)495-5501
FAX: (617)495-2900
e-mail: @harvard.edu**For attention of:**

Appendix 2: Sample Statement of Intent (NIH Format)**Statement of Intent****For a Research Proposal Entitled:****Harvard Principal Investigator:****Harvard Co-Principal Investigator:****Collaborating Institution:****Principal Investigator:**

The appropriate programmatic and administrative personnel of each institution involved in this grant application are aware of the **sponsor's** policies and are prepared to establish the necessary inter-institutional agreement(s) consistent with those policies.

President and Fellows of Harvard College
Institution

XYZ University
Institution

Signature

Signature

Typed Name

Typed Name

Title

Title

Date

Date

Appendix 3: Sample Budget Justification

Budget Justification

Personnel

Principal Investigator—Professor Nobel will be responsible for the overall technical direction of the project. One summer month of support is requested, which is equal to 1/9 of her academic year salary. A 3% increase has been factored for each out year of the proposed grant in accord with historical University faculty salary increases.

Postdoctoral Fellows

In years 1, 2, and 3, funds are requested for one full-time Postdoctoral fellow. In year 4 we anticipate hiring two new postdoctoral fellows; one will work full-time and the other half-time on this grant. Thus for years 4 and 5 of the proposed grant funds are requested to support 1.5 postdoctoral fellows.

<i>Year 1:</i> Starting salary: \$40,000 per year	\$40,000
<i>Year 2:</i> Base salary of \$40,000 + 3%	\$41,200
<i>Year 3:</i> Base salary of \$41,200 + 3%	\$42,436
<i>Year 4:</i> For this year and the remaining year of the proposed grant we request 6 additional months of support for postdoctoral fellows. We anticipate hiring 2 new Postdoctoral Fellows in year 4, at an estimated starting salary of	\$43,000 each
Starting salary of \$43,000 x 1.5 Postdoctoral Fellows	\$64,500
<i>Year 5:</i> Base salary of \$43,000 + 3% x 1.5 Postdoctoral Fellows	\$66,435

Graduate Research Assistants

Funds are requested to support a full-time 12-month-enrolled graduate research assistant for each year of the proposed grant. The current graduate research assistant salary in the department is \$30,000. In accord with historical University precedents, a 3% salary increase is factored for years 2 through 5.

Administrative and Technical Assistance

Beginning in year 3 of the proposed grant, funds are requested to support a 25%-time Grant Administrator who will manage all financial aspects of the grant, coordinate and assist in the preparation of manuscripts for publication, make complex travel and meeting arrangements for the participants at the remote sites, and administer the subcontract agreement. An annual 3% salary increase is assumed.

<i>Year 3:</i> Starting salary of \$48,000 x 25%	\$12,000
<i>Year 4:</i> Base salary of \$48,000 + 3% x 25%	\$12,360
<i>Year 5:</i> Base salary of \$49,440 + 3% x 25%	\$12,731

Fringe Benefits: The faculty fringe benefit rates used for year 1 through year 5 are []% in year 1, []% in year 2, and a 1% increase in years 3 through 5.¹⁰¹

Postdoctoral fringe benefit rates are []% in year 1, []% in year 2, and a 1% increase in years 3 through 5. The fringe rate for the Administrative Assistant is []% in year 3 and a 1% increase in years 4 and 5. Rates are in accord with the University Area DHHS rate agreement dated []

¹⁰¹ See Section IV.B.2 for appropriate fringe benefit rates.

Equipment*Year 1*

\$61,000

The specialized analytical bench needed for the proposed research must be fabricated on-site. Components include: [_____]

Year 2

\$17,000

An additional workstation with 4 gigabytes of RAM and 1.5 terabytes of storage will be required to collect and integrate the data from the remote field operations.

Travel

Year 1, 2, 3, and 4 Foreign Travel:

\$3,500/year

Travel is for the PI and Co-PI to meet with Professor Renault in Paris

Airfare: $\$800 \times 2 = \$1,600$ Meals: $\$65 \text{ per day} \times 4 \times 2 = \520

Ground transportation: \$180

Lodging: $\$150 \times 4 \times 2 = \$1,200$

Year 1, 2, 3, and 4 Domestic Travel:

\$7,000/year

Domestic travel includes three trips per year for collaboration and meeting with the Program Officer [for this award]. Funds are also requested for the PI and a Postdoctoral fellow to attend one conference per year. Average cost per trip:

Airfare: $\$550 = \550 Meals: $\$55 \times 4 = \220 Ground Transportation: $\$120 = \120 Lodging: $\$130 \times 3 = \390 Conference registration fees: $\$300 = \300 **Other Direct Costs:**

Materials and Supplies: Components for the vapor cell manufacturing materials include: chemicals, valves, tubing and glass, parts for the shop-built diode lasers (metal stock, diodes, optics, electronics), computer software, optical parts, (lenses, mirrors, etc.), electronic parts, and polishing supplies. Machine shop charges are also included in the materials and supplies category for each year of the proposed grant.

Year 1: \$12,000*Year 2:* \$ 8,500*Year 3:* \$ 3,000**Subcontract:**

A subcontract with the French-American Institute is planned beginning in Year two of the proposed grant. The Subcontract Project Director will be Professor Renault. Funds requested will be used to support two Visiting Scientists at the Institute for the remaining four years of the proposed grant. Please note that the Subcontract has been increased by 4% annually.

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