Morgan State University Principal Investigator Handbook Part 1: General Principles

REVISED: SEPTEMBER 2022

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DIVISION OF RESEARCH AND ECONOMIC DEVELOPMENT | MORGAN STATE UNIVERSITY

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Acknowledgement:

The Office of Research Administration thanks colleagues from the Division of Research and Economic Development, the Division of Academic Affairs, the Division of Finance and Administration, and the Office of Internal Audit and Management Review who read this document in part or in its entirety and provided valuable comments.

Disclaimer:

This PI Handbook is for training and informational purposes only, and its content does not supersede any University policies or terms and conditions that govern the administration of the sponsored awards.

Please send any suggestions to ask.ora@morgan.edu.

An electronic copy of this Handbook is available at the ORA website: www.morgan.edu/ora.

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CHAPTER 1: SPONSORED PROJECTS (GRANTS, COOPERATIVE AGREEMENTS, CONTRACTS)

What is a sponsored project?

A sponsored project is any activity (e.g., research, student training, space renovation) supported by external funds awarded to the University, through a formal communication between the University and the sponsor. The communication is reviewed by the Office of Research Administration (ORA) and is signed or approved by an authorized University official.

The funding comes with a series of responsibilities. Typically, a sponsored program has one or more of the following attributes:

- Restriction of the use of funds to certain activities;
- Requirement for programmatic or technical report;
- Requirement for fiscal report and/or audit;
- Provision of disposition of intangible property, such as patents, copyrights, inventions, or licenses that may result from the activity.

If the University receives an award from a sponsor (a federal or state agency; a private agency; or a foundation) that requires technical and financial reporting, it must be processed through the ORA.

What type of funding is not considered a sponsored project?

Gifts and bequests to the University, and direct payments to individuals.

Gifts typically do not request a technical report and do not have financial/audit requirements. Gifts to the University need to be processed through the University Foundation.

Direct payments to individuals (rather than to the University) may include, but are not limited to, certain types of faculty fellowships.

Why are universities interested in securing sponsored projects?

Sponsored projects often give the University an opportunity to serve society. For example, grants may be used to conduct research whose results promote the nation's health. Such achievements enhance the reputation of the institution. In addition, receiving grants may directly help the students (e.g., through tuition and stipends), faculty members (e.g., through providing summer salary), or the institution (e.g., by purchasing equipment for labs).

What are the main three types of sponsored projects?

Grants, cooperative agreements, and contracts.

A **grant agreement** is formally defined in 2 CFR 200.1 "Grant agreement" and is used when the principal purpose of the project is to accomplish a public purpose of support or stimulation. If the grant is federal, it is authorized by a federal statute.

A grant is a type of assistance mechanism. The exact course of the work and the outcome of a grant may not be precisely defined. For example, the federal government may give the University a grant to study the anticarcinogenic potential of a certain molecule. At the conclusion of the study, the researchers may find that that molecule does not appear to have anticarcinogenic properties. Neither the University, nor the investigators, will be penalized for such an outcome.

A **cooperative agreement** is formally defined at 2 CFR 200.1 "Cooperative agreement" and is similar to a grant, in that its purpose is public support or stimulation. Therefore, a cooperative agreement is also using an assistance mechanism. However, the difference with a grant is that the sponsor is often much more involved in the design and implementation of the project. The nature of such involvement is often defined and specified in advance.

A **contract** is formally defined in 2 CFR 200.1 "Contract" and is used when the primary purpose of the transaction is acquisition of property or services for the direct benefit or use of the sponsor. There is substantial sponsor involvement and contract performance is monitored closely to ensure accomplishment of the contract goals. For example, the federal government may give some funds to the University to build a certain instrument, where it is expected that this instrument be built on time and exactly to the specifications detailed in the contract. Contracts carry a much higher responsibility.

What are some purposes of grants and cooperative agreements?

As discussed earlier, grants and cooperative agreements are used for the benefit of society. They can be used for many purposes, such as research, faculty and student training, and institutional enhancement. For example, grants and cooperative agreements may be awarded to:

- Discover risk factors of cardiovascular diseases (research);
- Train the next generation of biomedical scientists of diverse backgrounds (training);
- Preserve the roof of the University Chapel (institutional enhancement).

Who are the sponsors?

Sponsors may include, but are not limited to, federal, state, and city agencies; foundations; industry; and even individuals.

A substantial portion of MSU sponsored project funds come from federal agencies, such as the National Institutes of Health (NIH), National Science Foundation (NSF), Department of Defense (DoD), Department of Education (DoEd), and Department of Transportation (DoT). MSU has also been very successful in receiving funds from agencies of the State of Maryland, such as the Maryland Department of Transportation (MDoT) or Maryland Department of Education (MDoE). Baltimore City agencies, such as the Baltimore City Department of Health (BCDH), have served as sponsors as well. Likewise, MSU has received funds from foundations (e.g., Mellon Foundation) or the industry (e.g., Apple). Individuals may sponsor projects, but it is uncommon; they typically give gifts. MSU has rarely received funding from international governments; there may be substantial legal and export control issues hindering MSU from receiving such funds.

MSU may also receive subawards from other entities (primarily other universities) who in turn may receive funds from the above-mentioned entities.

Which individuals conduct the sponsored project on behalf of the University?

Principal investigator, key personnel, and other personnel.

A **principal investigator (PI)** is the individual who has the primary responsibility of preparing the proposal, conducting the project, providing administrative supervision, and providing the interim and final technical reports. Given the importance of the PI's role, it is almost always required that a change of PI be approved by the sponsor. Some sponsors, such as the National Institutes of Health (NIH), require that a 25% or more change in time and effort also be reported and receive approval.

There are other **key personnel** in each project, besides the PI. These are individuals who are integral to the project and whose contributions to the scientific development or administration of the project is quite substantive, whether or not they are compensated by the project. Some funding agencies, such as the NIH, require reporting and receiving approval for a change in key personnel, or even for change of over 25% in their effort.

There are **other personnel** who may be conducting part of the project but who do not have key roles, and can be replaced with others with similar qualifications, without much harm to the project.

Who can assume the PI role?

It is desirable that the same PI directs the program throughout the term of an award for purposes of continuity, consistency, and accountability. Therefore, the MSU guideline is that the PI must be a tenured or tenure track faculty member, a senior staff, or an administrative officer of the University.

There may be exceptions to this general guidance. For example, some individual fellowship applications (e.g., NIH National Research Service Awards) require that the Fellow be listed as PI.

Can a sponsored project have more than one PI?

Some sponsors allow the project to have more than one PI. In such cases, it is advisable (and sometimes mandatory) to have a multiple PI plan that describes the need for such arrangement, the unique contribution of each PI, and the plan for conflict resolution.

Also, while some agencies (e.g., NIH) allow for multiple PIs on some of their grants, they want to communicate with only one PI. Therefore, they ask that a "contact PI" be designated.

Can individuals outside the University contribute to the project?

Yes, unless prohibited by the sponsor. External individuals may represent themselves (through a **consulting agreement**) or their institution (through a **subaward**).

Consultants are individuals who are not members of the University, have substantial expertise related to the project, and represent themselves, not their institution. Consultants may be paid by the project, at a reasonable rate and for a limited number of hours. Consultants cannot be affiliated with the University; intra-university consulting is considered part of professional duties and will not be a reason for additional pay. Also, potential conflicts of interest need to be seriously considered. For example, it may not be appropriate for the PI to ask her spouse or children to serve as consultants. In such cases, all permissions need to be obtained.

Subawards are used when the external entity is another University or institution. For example, Johns Hopkins University (JHU) may be a subrecipient from MSU, with one or several JHU faculty members being paid through the subaward. In such cases, a subrecipient letter of commitment and other documents may be needed.

Subawards should be considered only when needed. MSU, as the prime award recipient, has the responsibility for the technical and financial integrity of the entire project, even the work that is done by the subrecipients. Furthermore, subawards require substantial administrative work to review and sign contracts between MSU and other entities. Therefore, extreme care should be exercised in selecting the right subaward recipients, limiting their numbers, and limiting the budget that is given to the subrecipients.

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What are some risks associated with accepting sponsored projects?

There are many risks associated with sponsored projects, which may potentially tarnish the reputation of the University. For example:

- Failure to comply with standards of ethical research in humans or animal welfare;
- Lack of consideration of safety standards when working with hazardous materials;
- Fabrication, falsification, or plagiarism when conducting research;
- Fraud and embezzlement of funds;
- Using funds for purposes other than those permitted by the sponsor;
- Accepting funds from a sponsor with a poor reputation.

As such, the University should be judicious in submitting applications, signing agreements, and monitoring the progress of the award.

Can PIs directly submit a sponsored project application?

No. The University is the official entity responsible for the sponsored project. All sponsored project applications must be reviewed and submitted by the ORA. The PI cannot directly enter into an agreement with the sponsor for conducting the project. The primary reason is that, as described above, there are many risks with accepting a sponsored project, and the University needs to ensure that it can comply with the requirements. Otherwise, the reputation of the University may be at risk. Also, the University, its administrators, or the faculty members may be subject to various penalties.

Who do I contact to assist me with submission of the proposal?

Prospective PIs should contact Dr. Farin Kamangar (farin.kamangar@morgan.edu), Assistant Vice President for Research Administration, or Ms. Ailing Zhang (ailing.zhang@morgan.edu), Senior Grants Manager. They will either assist the PI directly, or will direct them to the right person.

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CHAPTER 2: SPONSORED PROJECT LIFE CYCLE

Each sponsored project has a life cycle. It typically starts with developing an idea and ends in submitting all of the final reports. The life cycle includes the following:

- Develop the idea;
- Identify the funding opportunity;
- Prepare the proposal (technical aspects, budget, and other ancillaries);
- Submit the proposal;
- Set up the award (if funded);
- Execute the project;
- Submit the periodic technical and financial reports;
- Perform close out and submit the final technical, financial, and patent reports.

Develop the idea

There are many sources for ideas. Sometimes it is your idea; you have always wanted to study the effects of a certain chemical on the sleep pattern of rats, and now you have an opportunity to do that. At other times, the idea may be someone else's but they don't have the time to write or execute another grant, so you are asked to lead the work. Yet at other times, the funding agency may approach you with an idea because of your expertise. Talk to your colleagues and find out examples of sponsored projects that they have been engaged in. Also, talk to program officials at funding agencies (e.g., NIH, NSF, or DoD).

Research ideas should be feasible. MSU and its research partners (including the subaward recipients) should have the right facilities, equipment, and safety procedures to make the study feasible. There should also be adequate expertise between the PI, other MSU key personnel, and external consultants or subaward recipients.

Obviously, ideas that are highly novel are more likely to be funded. But you would be surprised to learn that many funded grants and cooperative agreements are not highly novel. Try! Get involved.

Identify the funding opportunity

You can increase your chances of finding the right funding opportunity in many ways. You may:

- Speak with program officials of various funding agencies, such as the NIH, NSF, DoD, and foundations. They may guide you toward the right funding opportunity, or they may even have the ability to create one that matches your idea. Data show that investigators who communicate with the program officials are much more likely to be funded.
- Talk to your MSU colleagues, department chair, or assistant dean for research. They may be able to guide you.
- Talk to colleagues from other institutions. It is quite likely that they are looking for a partner like you and are ready to give you a subaward.
- Subscribe to receive emails from relevant websites or specialized software. MSU subscribes to the software PIVOT-RP, which is an up-to-date comprehensive database of global funding information.

Also, please seriously consider state-funded opportunities. MSU is an agency of the State of Maryland, and can receive substantial sums from inter-agency agreements. Some schools within MSU, e.g., the School of Social Work, have been very successful in receiving such funds.

Limited submissions

Funding agencies occasionally place limits on the number of letters of intent, pre-proposals, or proposals that any university may submit in response to a funding opportunity announcement. If so, please contact the ORA to ensure that your proposal is among those chosen by the University for submission. You may contact Ms. Ailing Zhang (ailing.zhang@morgan.edu) or Dr. Farin Kamangar (farin.kamangar@morgan.edu). Further information regarding the procedure and selection of the proposal can be found in this link.

Prepare the proposal

The core of any good proposal is showing that the proposed work has significance, the methods are solid, the environment is conducive to getting the work done properly, and the investigators are capable of handling the work. In the case of research, innovation substantially matters as well. Some funding opportunities require a plan to show how the work will be evaluated for its impact. These components are often summarized, respectively, under Background and Significance, Research Methods, Environment, Investigators, Innovation, Evaluation. Although the headings may vary by the type of proposal and funding agency, the element will remain the same.

Proposals often have other components to be attached, including biographical sketches of the investigators, letters of commitment or support from the University leaders, letters of support from external collaborators, certificates and assurances, and plans for protection of humans or animals.

Another important component of any proposal is budget, also known as cost proposal. Further information about budgeting for grants is shown in other sections of this PI Handbook. A detailed treatment has been given in “MSU PI Handbook, Part 2: Grant Budgets.”

Submit the proposal

The PI will submit the proposal, budget, and other supporting material to the ORA. It is the ORA (not the PI) that submits the proposal to the sponsor. The ORA will also complete some additional required forms (e.g., SF-424) that need to be submitted to the sponsor. Given that this process may be time-consuming, the ORA requests that the PIs submit their proposals at least five (5) working days in advance of the submission deadline.

The PI is required to complete and submit an internal routing form (IRF) prior to the submission of the proposal. The purpose of the IRF is to inform the appropriate University administrators about the submission of this proposal and its requirements (e.g., release time, physical space, human or animal studies, etc.). It is important that University administrators concur with submission, so that there will be no surprises or disagreements after the project is funded.

Set up the award

Once a formal communication or the notice of award (NoA) is received, indicating that the sponsored project has been awarded, the project needs to be set up. The following steps must be taken:

- The ORA organizes a post-award briefing for the PI, discussing the terms and conditions of the sponsored project;

- The ORA sends the grant budget information to the Office of Restricted Funds Accounting;
- The Office of Restricted Funds Accounting issues the budget index and fund.

After the index and fund are issued, the PI can use two mechanisms to access the funds: P-card or requisitions. (This is like a bank account holder spending money using a card or checks. The process of paying checks, which are issued by the State of Maryland, starts with requisitions.)

- The P-card is issued by the P-card Office, after the PI receives the required training. A request must be submitted to link the P-card to the issued index and fund.
- For requisitions, access should be established in BANNER by submitting a workflow request.

The P-card is typically used for purchase that are below $5,000. Requisitions are used for purchases that are above $5,000, or when the vendor does not accept the P-card.

Please remember that all the above-mentioned steps need to happen. Otherwise, the PI will not have access to the funds, and the project may remain dormant.

Execute the project

Each project is unique. Conducting the research project requires scientific expertise and research focus. However, it also needs substantial administrative work. To conduct the project properly, the PI and their team may need to hire individuals, purchase supplies or equipment, pay stipends to students, issue a subaward to another university, pay an outside consultant, travel, etc.

The process for each of these activities is described in detail in a separate document (MSU PI Handbook, Part 3: Grant-Related Processes). Some of the processes may take up to a few weeks. For example, signing a contract with a hotel to host a seminar often requires registering the hotel with MSU and obtaining a vendor ID, submitting a requisition, turning that requisition into a purchase order, receiving the invoice, approving the invoice, and waiting for the State to issue the check. Therefore, one has to start the process quite early. It is also important to follow the steps correctly to avoid any delays.

Submit periodic technical and financial reports

The sponsor may require periodic (e.g., annual, quarterly, or even monthly) technical reports that show the progress of the project. For example, NIH often requires annual submission of the Research Performance Progress Report (RPPR), documenting the progress of the work.

Likewise, the sponsor may want to receive periodic reports about financial expenditures. For example, NIH requires the submission of an annual Federal Financial Report (FFR). The Office of Restricted Funds Accounting typically draws down funds and submits financial reports.

Close out and submit the final reports

For proper close out of a sponsored project, the PI must ensure that:

- All technical and financial reports required by the sponsor are submitted on time;
- All sponsor requirements for the transfer or disposal of property purchased through the award are met;
- Patent or copyright procedures, if applicable, are followed; and
- Proper termination procedures are followed for contractual personnel hired only for the duration of the award.

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CHAPTER 3: BUDGET BASICS

We have provided a detailed treatment of budget preparation in "MSU PI Handbook, Part 2: Grant Budgets." Here, we briefly review the budget items and their definitions.

Total, Direct, and Indirect costs

Total costs are the sum of direct costs and indirect costs.

Directs costs are those costs that directly benefit the research project. Examples include salaries and wages of the researchers, stipends, travel costs, supplies, equipment, and consultancy fees.

Modified total direct costs are a subset of total direct costs that do receive indirect costs. Please see below for further details.

Indirect costs, or facilities and administration (F&A) costs, are given to the institution (in our case, MSU) to defray the facilities and administrative costs burdened by the University. Please note that this is not a gift to the University; it is used to defray existing costs. The **administrative** burden is substantial. The University President spends time advocating for research and meets with researchers. So do the Provost and VP for research, deans, and department chairs. The University has staff in the Office of Research Administration who assist with reviewing budget and submission of proposals, preparing subawards and contracts, and oversight and compliance; and personnel in the Restricted Funds Accounting Office who assist with accounting and draw downs. The University also pays for maintenance of laboratories, office space for researchers, library journals for researchers, etc, which is part of the **facilities** component.

Further information about the calculation of direct, modified direct, indirect, and total costs are provided in "MSU PI Handbook, Part 2: Grant Budgets."

Direct cost items

These are items that directly benefit the project. In addition to paying individuals, the PI can potentially request other legitimate direct costs, such as communications (e.g., letters to study participants), supplies (e.g., gloves and pipettes), research equipment, consultancy fees, speaker fees, etc. A potential list of asks is shown below. The reason we use the term "potential" several times here is that depending on the type of funding, recipient institution, and other factors, some costs are "allowable" and some are not. Each sponsored project is unique and may support only some of these items. For example, a certain NSF grant may allow for purchasing of a certain equipment, but not for salaries, supplies, or other items. The notice of award must be read very carefully.

Salaries are usually fixed amounts paid to employees for conducting their duties. The amount is usually fixed and does not change each pay period. For example, you might want to hire a full-time laboratory technician with a salary of $45,000 per year.

Wages are hourly payments to employees for each hour they work. Although the rate usually remains constant, the total sum paid may fluctuate from pay period to pay period. For example, you hire a graduate student to conduct some experiments in your lab, at a rate of $20/hour. The graduate student may work 15 hours this pay period but only 6 hours the next pay period. Payment is commensurate with hours worked.

Stipends are different from salaries and wages. Stipends are typically predetermined (fixed) amounts paid to trainees to defray the cost of living. Unlike salaries and wages, which are given to employees to accomplish the work, stipends are mostly for the benefit of the trainees. For example, you may want to give a stipend of $6,000 per year to an undergraduate student who participates in a training program. Many of the stipend amounts are set federally - Ruth L. Kirschstein National Research Service Award (NRSA) Stipends – and are adjusted annually. While the student has some responsibilities, their main function is not to work for the sponsored project. Stipends can be given to undergraduate students, graduate students, and postdoctoral fellows. Stipends may also be considered for faculty of other universities who participate in a training conference or workshop. But stipends cannot be given to faculty members to conduct research, nor can they be used to pay graduate students who work on an hourly basis to accomplish the required research. Think of benefit to the trainee, not to the project. Stipends are often included in the "participant cost" budget line item. Please see below.

Tuition benefits may be considered for students. For example, a training grant may allow you to pay up to 60% of the tuition of the students. If MSU's annual in-state tuition is $9,000 per year, 60% will be $5,400 per in-state student. Tuition and fees are often included in the "other direct cost" budget line item. Please see below.

Consultancy fees may be paid, at a reasonable rate, to external experts, such as scientists who have their own business or faculty members who work for other universities (if their institution allows them to do so). In the latter case, the faculty member is representing themself, not their university; otherwise, there should be a subaward to their university, not a consulting agreement. Consultancy fees may not be paid to faculty members of your own institution (MSU). For example, you may pay Dr. Jane Doe of Harvard University a total of $5,000 (e.g., for 50 hours, at a rate of $100 per hour) as your consultant. But you may not pay Dr. John Doe, a faculty member at MSU, a consulting fee. Consultancy fees are often included in the "contractual services" line item. Please see below.

Speaker fees (honoraria) can be paid, at a reasonable rate, to external experts who give a talk or provide some expertise. For example, you may want to pay $400 to Dr. Jim Jones of University of Michigan who gave a talk at your interdisciplinary seminars. Honoraria are often included in the "contractual services" line item. Please see below.

Gift cards and cash incentives may be given to study participants for various purposes, such as completing a survey. These are usually small amounts and need to be accounted for very carefully. At MSU, funds for incentives for study participants are arranged under the research working fund mechanism. Gift cards and cash incentives are often included in the "other direct cost" budget line item. Please see below.

Scholarships are usually a fixed amount given as an award to a student, trainee, or scholar. For example, the university or a benefactor may set up a $5,000 scholarship for students with certain criteria. The students who qualify can compete for that scholarship. Scholarships may be used for tuition and other qualified expenses, or they may be used as stipends. Because the definition is vague and may include a few budget items (e.g., tuition or stipend), they are usually not written into a single budget line of the grant.

Fellowships are sometimes used interchangeably with scholarships and are used for students or other trainees. Alternatively, they may denote short-term professional or work opportunities (e.g., postdoctoral fellowships) used for training or doing research. The term has some ambiguities and may come with a variety of benefits. Fellows may be paid stipends or salaries (depending on the program or visa requirements); or may receive tuition remission, travel allowances, book allowances, etc. Because fellowships are complex, they are usually not written into a single budget line of the grant.

Fringe benefits are supplements to salaries and wages, given to employees. They cover FICA/Medicare, retirement, healthcare insurance, unemployment insurance, tuition remission, TIAA/CREF, and worker's compensation.

Supplies are research material that cost less than $5,000 or are expected to last less than a year. For example, a computer that costs $3000 is considered supplies (not equipment). Other examples include office supplies, test materials and instruments, animals, animal food, laboratory supplies, chemicals, electronic supplies, and project-related books.

Equipment are those items that cost over $5000 and are expected to last over a year. For example, a computer system that costs $6500 is considered equipment. Equipment installation, rental equipment, and accessories included with equipment are also considered here.

Travel may be considered for faculty, staff, and students. Local, domestic, or international travel may be allowed to conduct the research, supervise research sites, meet with collaborators, or attend conferences. Airline/train tickets, mileage, ground transportation, lodging, per diem, and meeting registration fees are often requested.

Participant support costs are *"direct costs for items such as stipends or subsistence allowances, travel allowances and registration fees paid to or on behalf of participants or trainees (but not employees) in connection with meetings, conferences, symposia or training projects,"* according to Uniform Guidance and NSF instructions.

Contractual services may include consultants (honoraria, travel, per diem), subcontractors, photographic services, audiovisual production, printing and copying services, report preparation, editorial services, central computer services, library loans, etc.

Space alterations and renovation budget line may be used to renovate a space such that it is of benefit to the research or training. One example at MSU's campus is the ASCEND Student Research Center, where a vacant apartment was renovated for students to discuss research and enhance their leadership skills.

Subawards are used to pay other institutions that collaborate with you in conducting the project. A subaward may have multiple expense categories (e.g., personnel, stipends, supplies, etc). Subaward requests are prepared by the collaborating institute and negotiated with the MSU PI. The subaward appears as one of the direct costs, typically under the "other direct cost" line item. Please see below for more details.

Other direct costs include a variety of items, some of which are discussed below.

Tuition/Fees: For students in a training program.

Communications: Such as postage, express delivery service, Zoom.

Software: Such as SPSS, SAS, Stata.

Journal page charges: For publishing peer-reviewed papers.

Recruiting costs: Such as advertising for new personnel.

Maintenance Contracts: Such as for equipment.

Subawards may be given to other institutions who work with you on your grant. Subawards may include salaries, hourly wages, stipends, etc.

Matching (Cost Sharing) refers to funds that support the sponsored project but are not provided by the sponsor. Cost sharing may be mandatory, voluntary committed, or voluntary uncommitted.

Mandatory cost sharing refers to instances that the sponsor requires the University (or another entity) to provide some funds for the project. In other words, the University is requested to *have skin in the game*. Cost sharing may be provided using time of the faculty, staff, and students compensated by the University, but not by the grant. The costs of such items as travel, computer time, supplies, printing or telecommunications may also be used for matching under some circumstances. Contributions of salaries and fringe benefits must be approved by the Chair, Dean, and the Provost. Contributions of facilities and administrative cost (indirect cost), when acceptable to the funding agency, must be approved by the Vice President for Research and Economic Development. PIs should contact ORA for assistance or clarification on matching funds.

Voluntary committed cost sharing refers to instances where the proposal makes a clear commitment, while it is not requested by the sponsor. For example, the proposal may make a commitment that the University will provide 20 laptops at no cost to the sponsor, while no such cost sharing is requested. MSU prohibits voluntary committed cost sharing.

Voluntary uncommitted cost sharing is funding that is not identified in the proposal but is attributable to the project, such as effort for project personnel above the percentage committed in the proposal. Voluntary uncommitted cost share need not be reported to the sponsor or separately accounted for by the University.

Note: To emphasize again, voluntary matching or cost sharing is prohibited. PIs should contact ORA for assistance or clarification where such matching is required by the funder.

Items that receive indirect costs (F&A) in federal grants include salaries, wages, fringe benefits, supplies, equipment, travel, contractual and consultancy fees, communications, software, recruiting costs, and maintenance costs.

Items that do not receive indirect costs (F&A) in federal grants include participant costs, equipment, and renovations and alterations. When MSU issues subawards to another institution, only the first $25,000 of each subaward receives indirect cost. For example, if MSU issues a subaward to Johns Hopkins University for $500,000, MSU receives indirect cost on only the first $25,000, but not the other $475,000. However, Johns Hopkins University will include their own indirect cost in the $500,000 that they receive.

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CHAPTER 4: GRANT FUNDS AVAILABLE TO MSU INVESTIGATORS

Many funding opportunities are available to MSU investigators via federal agencies (e.g., the NIH, NSF, DoD, DoT), State agencies (e.g., MDoT, MDoE), foundations (e.g., Mellon Foundation), and industry (e.g., Google and Apple).

Most funding opportunities available to other institutions are also available to HBCUs. More importantly, there are some funding opportunities that are set aside for minority-serving institutions, institutions with high percentage of Pell-grant recipients, or solely for HBCUs. MSU faculty members have a particularly high chance of receiving such funds.

Some examples are listed below:

NIH

MSU has been the recipients of major cooperative agreements from the NIH. For example, MSU has received a BUILD grant from the NIH (called ASCEND, $40 million), or Research Centers in Minority Institutions (RCMI, $17 million).

MSU has also been very successful in receiving NIH funds for research training. For example, MSU has had NIGMS RISE (Research Training Initiative for Student Enhancement) grants for over 20 years. The RISE Program provides funding for training of undergraduate, master's, and doctoral students, and is intended to increase the diversity of the biomedical research workforce.

MSU has a history of receiving NIH Maximizing Access to Research Careers (MARC) Awards (MARC, T34) grants, but we no longer have a MARC grant. We have the opportunity to win such grants. The goal of these grants is to provide research training to develop a diverse pool of undergraduates who complete their bachelor's degree, and pursue research-focused terminal degrees (PhD, MD/PhD) related to the mission of NIH.

MSU has had several NIH Support of Competitive Research (SCORE) grants, including several SCORE 2 (SC2) and SCORE 3 (SC3) grants. These grants provided research capacity building to enhance the research competitiveness of faculty at institutions with limited NIH R01 funding and a stated mission or historical track records in graduating students from groups nationally underrepresented in biomedical research. The SCORE Program has been discontinued and replaced with the NIH SuRE Program (see below).

The NIGMS Support for Research Excellence (NIGMS SuRE) Program is intended to enhance research capacity at institutions that: a large proportion of their students are of underrepresented backgrounds in biomedical research; award degrees in biomedical sciences; and receive limited NIH Research Project Grant funding. NIGMS SuRE grants provide support to develop and sustain research excellence for faculty in such institutions. By doing so, they also provide students with research opportunities, while enhancing the research culture of the institution.

NSF

MSU receives a large number of grants from the NSF, including HBCU-UP and EiR grants (see below).

The NSF Historically Black Colleges and Universities - Undergraduate Program (HBCU-UP) supports STEM undergraduate education and research at historically Black colleges and universities through several tracks, including: Targeted Infusion Projects (TIP), Research Initiation Awards (RIA), Implementation

Projects (IMP), Broadening Participation Research Centers (BPRC), Early-Concept Grants for Exploratory Research (EAGER), Rapid Response Research (RAPID), conference, and planning grants. The descriptions of these programs can be found in HBCU-UP.

The NSF Historically Black Colleges and Universities - Excellence in Research (HBCU-EiR) provides research funding to HBCU faculty members and is intended to ensure sustainable improvement in their research and development capacity.

The NSF Centers of Research Excellence in Science and Technology (CREST) and HBCU Research Infrastructure for Science and Engineering (HBCU-RISE) support centers, partnership supplements, and postdoctoral fellowships. These programs are primarily intended to enhance the research capabilities of minority-serving institutions (MSIs).

The NSF Faculty Early Career Development Program (CAREER) is a very prestigious NSF award that supports early-career faculty who have the potential to serve as academic role models to conduct research related to NSF's mission. The faculty member is expected to have a strong research plan and to build a firm foundation for a lifetime of leadership in integrating education and research. MSU has not yet had any CAREER awards, but early-career faculty members are highly encouraged to pursue these awards.

NASA

MSU has received major cooperative agreements from NASA. For example, MSU has thus far received $58 million for the cooperative agreement entitled GESTAR (Goddard Earth Sciences Technology and Research).

NASA has a series of STEM Engagement Programs, including the Minority University Research and Education Project (MUREP). Through MUREP, NASA provides financial assistance via competitive awards to minority serving institutions, including HBCUs like MSU. The purpose is to recruit underrepresented students into STEM fields and retain them. MSU has had MUREP funds and is eminently qualified to receive more awards.

DoD

MSU has been the recipients of at least one major cooperative agreement from DoD, including from the US Army and the Air Force Research Laboratory (AFRL), as well as many research grants and contracts.

The US Army, under the Office of the Under Secretary of Defense for Research & Engineering, has established the Historically Black Colleges and Universities/Minority-Serving Institutions (HBCU/MI) Program. The purpose of the Army HBCU/MI Program is to "1) increase the research and educational capacity of HBCUs/MIs, and 2) to foster workforce diversity and entry of underrepresented minorities into science, technology, engineering, and mathematics (STEM) disciplines important to national defense." Ms. Evenly Kent leads the program.

A salient example of DoD-funded cooperative agreements is a $7.5-million award to establish the Center for Advanced Electro-Photonics with 2D Materials. This Center will provide a platform to train STEM students for cutting-edge research on quantum materials, and technologies for clean energy, electromagnetic sensing and information processing.

MSU investigators have also been very successful in obtaining individual grants or contracts with certain DoD offices, such as the Air Force Office of Sponsored Research (AFSOR).

Other federal agencies

MSU has received major funding from many other federal agencies, including: the US Department of Transportation, the US Department of Education, the National Institute of Standards and Technology (NIST), the Centers for Disease Control and Prevention (CDC, a part of Department of Health and Human Services or DHHS), and other agencies.

State of Maryland

MSU receives substantial grant and contract funds from the State of Maryland. Given that MSU itself is an agency of the State of Maryland, most such funds are through inter-agency agreements.

One of the salient examples is funds coming to MSU from the Maryland Department of Transportation to MSU's National Transportation Center at Morgan State University and the Urban Mobility & Equity Center. Other examples include interagency agreements that the School of Social Work has obtained in collaboration with the University of Maryland. For example, the School of Social Work has received funding from the Maryland Behavioral Health Integration in Pediatric Primary Care (BHIPP) program. BHIPP supports the efforts of medical professionals to assess and manage the mental health needs of their patients from infancy through the transition to young-adulthood.

There are vast opportunities to receive funding from inter-agency agreements.

Foundations

There are over 70,000 private and community foundations in the United States. Some examples include:

- Robert Wood Johnson Foundation;
- Ford Foundation;
- William K. Kellogg Foundation;
- Carnegie Corporation;
- American Cancer Society;
- Alfred P. Sloan Foundation;
- Howard Hughes Medical Institutions; and
- Andrew Mellon Foundation.

Over the years, MSU has received grants from many of these foundations, including awards from the Robert Wood Johnson, Kellogg, Sloan, and Mellon Foundations. For example, a recent MSU/UMBC/College Park collaboration led to securing a $3 million grant from the Mellon Foundation, entitled "Breaking the M.O.L.D." The purpose of this award is to enhance the diversity of leaders in higher education.

Industry

MSU has a history of receiving funds from the industry, either directly, or mediated via a foundation. For example, MSU received $1.2 million from Apple® to enhance opportunities for HBCU engineering students studying computer architecture and silicon engineering. This award was mediated via the Thurgood Marshall College Fund.

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Effective ways to identify funding opportunities

Below is a list of ways to identify the right funding opportunities:

- Subscribe to receive emails from relevant websites or specialized software. MSU subscribes to the software PIVOT-RP, which is an up-to-date comprehensive database of global funding information.
- Talk to your MSU colleagues, department chair, or assistant dean for research. They may be able to guide you.
- Talk to colleagues from other institutions. It is quite likely that they are looking for a partner like you and are ready to give you a subaward.
- Speak with program officials of various funding agencies, such as the NIH, NSF, DoD, and foundations. They may guide you toward the right funding opportunity, or they may even have the ability to create one that matches your idea. Data show that investigators who communicate with the program officials are much more likely to be funded.
- Ask the D-RED Office of Research Administration if a seasoned consultant can be retained to help you.

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CHAPTER 5: WRITING AND SUBMITTING A STRONG APPLICATION

General

Sponsors typically want to make sure that their funds are spent well, and the intended outcomes are achieved. The following sections can usually be found in research proposals, in one form or the other.

Background and Significance

The proposal must show why the proposed work matters.

- What is already known or already accomplished?
- What is unknown, missing, or lacking? What is the gap?
- How does this proposal address that gap?

A strong literature search needs to be completed.

Research Methodology

The proposal must show that the research methods are solid. For example:

- Are the study subjects (when applicable) correctly selected?
- Are the questionnaires validated?
- Are the confounding variables selected appropriately?
- Are the statistical methods appropriate?

Poor methods often lead to the rejection of the proposal.

Innovation

What is new? How does this proposal provide any new knowledge, especially if the proposal is about research? Some of this was already covered under “Background and Significance”. A strong literature search is needed.

Environment and facilities

Most sponsors want to know if the environment and facilities available in the University allow for the proper conduct of the study. It is important to engage in research that is doable at MSU, and provide the right information to show that we do have the right environment and facilities.

Please note that it is not always equipment, facilities, or scientists that matter. It is sometimes other factors. For example, for a training grant related to diversification of the future generation of chemists, the question may be whether MSU has a high enough number of undergraduate or graduate students in Chemistry that can be trained using the funds from this project.

Investigators

The proposal should document that the investigators are highly capable of conducting the work, be it research, training, or otherwise. NIH and NSF require submission of biographical sketches (biosketches) with a certain format. Other sponsors may also be asking for CVs, biosketches, or other documents that establish the experience and credentials of the investigators. If there is room in the proposal, it may be useful to dedicate a section to the credentials of the investigators.

Evaluation

Some funding opportunity announcements require including an evaluation plan to document the success of the program. For example, the NIH RCMI grants, NIH BUILD grants, NIH RISE grants, and a host of NSF training grants require inclusion of an evaluation plan. Preferably, the evaluation plan should be written by experienced evaluators with a background in psychometrics or similar. Each objective of the proposal should be assessed, and a conceptual plan should be designed. Validated questionnaires should be used to assess various metrics, and appropriate statistical methods should be used.

Letters of commitment and support

University officials, usually the Authorized Organizational Representative, may need to sign a letter of commitment to show support from the University for the project. Sometimes it is useful (or mandatory) to have letters of commitment from the University President, Provost, or certain deans.

Letters of support may also be obtained from the external consultants or subaward recipients. For example, if an MSU study promises that genotyping for the study will be done in John Doe's lab at Johns Hopkins University, then a letter from John Doe should be obtained and included.

Consultants and subawards

Sometimes, the PI needs to include consultants (external experts) in the proposal. This happens when some of the expertise needed for the project is not available in the University, or the people who have that expertise have other obligations and cannot contribute to the project. It is advisable to choose consultants who are very well-known in their field, as the presence of such individuals enhances the weight of the proposal and will make the reviews more favorable.

Subawards are given to other institutions for a variety of reasons, including: a) having individuals with excellent credentials or expertise from the subaward recipient institutions; b) gaining access to facilities and equipment from those institutions; and c) sometimes for prestige. However, subaward recipients should be limited, and they need to be chosen very judiciously. The prime institution is responsible for the entire work, therefore giving subawards may carry a substantial risk. Furthermore, issuing subawards and subaward monitoring require a high level of administrative burden.

Budget and budget justification

The PI and their team should review each task, what is needed to accomplish the task, and estimate an appropriate budget for personnel, supplies, equipment, travel, etc. Budgets are preferably included in Excel sheets, and budget justifications are written in Word documents. More information about budget is included in Chapter 3, as well as in "MSU PI Handbook, Part 2: Grant Budgets".

Assurances and ethics

If human studies are conducted, IRB approval, related forms, and certain other information may need to be included. However, some sponsors allow for submission of such documents after the proposal has been tentatively selected for funding.

For human studies, some sponsors (e.g., NIH) may require plans for inclusion of minorities, women, etc.

If animal studies are conducted. IACUC approval and related forms may need to be provided. However, some sponsors allow for the material to be submitted after the proposal has been tentatively selected for funding.

Other assurances or justifications may be needed, depending on the sponsor and the type of the award. For example, NIH may require the following assurances, when applicable: "Human Subjects Research; Research on Transplantation of Human Fetal Tissue; Research Using Human Embryonic Stem Cells; Women and Minority Inclusion Policy; Inclusion of Children Policy; Vertebrate Animals; Debarments and Suspension; Drug Free Workplace; Lobbying; Non-Delinquency of Federal Debt; Research Misconduct; Civil Rights; Handicapped Individuals; Sex Discrimination; Age Discrimination; Recombinant DNA, including Human Gene Transfer Research; Financial Conflict of Interest; Smoke-Free Workplace; Prohibited Research; Select Agent Research; Principal Investigator Assurance."

The list looks long and daunting. However, you don't need to worry much. Only a subset may apply to your project. The ORA will help. And fortunately, most of the forms are now part of the electronic application package, so you will know whether they will apply to your project.

Final checks and touches

After the proposal has shaped up, it is useful to read the proposal carefully for details:

- Have all the points needed for review been addressed? Can the reviewer easily find them?
- Does the proposal have a logical flow? Does it read well?
- Are there any grammatical or typographical errors?
- Does the proposal aesthetically look good, within the boundaries and limitations allowed for submission?
- Are the page limits exceeded?
- Are all assurances, certificates, letters of support, biographical sketches, etc, included?

All of the above matters.

Internal routing form

When the proposal has shaped up, the components are clear, and the budget has been almost determined, an internal routing form needs to be submitted. The purpose of the internal routing form is to inform and receive approval from the University officials about the sponsor, the requirements of the grant (e.g., IRB approval, release time), the requested funds and indirect costs, etc. The internal routing form is approved by the chair, dean, and the ORA, establishing a record that the University has agreed to this submission.

Working with the ORA for submission

Working on the budget should start no later than 10 days prior to the submission deadline. The ORA budget specialist (currently Ms. Deshun Li) will assist with developing and reviewing the budget for compliance.

It is strongly recommended that the complete package be submitted to the ORA at least one week prior to the deadline. There is always a possibility of last-minute glitches and unanticipated events.

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CHAPTER 6: EXECUTING THE PROJECT AND SUBMITTING REPORTS

Preparations

Nearly all expenses are made through either P-card or BANNER-generated purchase requisitions. The P-card is immediate, while receiving approval via requisitions may take a few days to a few weeks, depending on the amount of the expenditure (see below).

As discussed in Chapter 2, the following steps need to be completed before the project can start:

- The PI must complete the D-RED post-award briefing;
- The Office of Restricted Funds Accounting should issue the index and fund;
- The PI must receive P-card training;
- The P-card should be linked to the project index and fund;
- The PI, or designee, should have BANNER access to the funds, which will start through a workflow.

Furthermore:

- IRB approval must be obtained for studies involving human subjects;
- IACUC approval must be obtained for studies involving vertebrate animals;
- Chemical hazards and radiation safety requirements must be in place.

Processes

Throughout the course of the project, the PI may need to: hire full-time or part-time personnel; purchase supplies or equipment; procure contractual services; travel; pay stipends or tuitions; etc. These processes involve using P-card and BANNER requisitions, as well as working with many offices across MSU, including the Office of Research Administration, Office of Restricted Funds Accounting, Office of Human Resources, Office of the Comptroller, Office of Procurement, Office of the Bursar, Financial Aid, and all levels of Academic Affairs.

The processes for each of these activities are summarized in “MSU PI Handbook, Part 3: Grant Processes.” It is useful to have that handbook handy and review the required process carefully, so that the process is done quickly and properly.

MSU P-card rules

The MSU P-card can be used to purchase goods and services costing up to $5,000 per single transaction or lower if one has been established. The PI (or the cardholder on his behalf) must complete a P-card training before the card can be issued. Subsequent grants can be linked to this same card. The use of the P-card makes all purchases much faster and more efficient than using requisitions. The vendors are paid typically in 3 days, versus approximately 45 days using requisitions.

To minimize risks, P-card controls have been implemented by the State of Maryland, which include:

- Single purchase limits (often $2,500 or $5,000);
- Monthly credit limits;
- Access limited to authorized categories of merchants.

The maximum limit for a single transaction cannot exceed $5,000. The monthly credit limit can change, depending on the needs and the number of grants each card supports. For example, if the PI has a grant

for $50,000, a monthly limit of $5,000 is likely to be adequate, but if the PI has multiple grants totaling $8,000,000, then a monthly limit of $50,000 may be justified. Because of risk of fraud, it is advisable to keep the monthly limit (and even each transaction) low, unless needed.

Using P-card comes with certain rules and regulations. For example, P-card may not be used for personal purchases, buying alcohol or gifts of sentiment (e.g., flowers), purchases to non-university addresses, buying office furniture, purchases that need licenses or contracts, etc. Please see this link for further information about the proper use of P-cards.

Important notes:

- If the price of an item is over $5,000, it cannot be broken into several pieces and paid for by the P-card. For example, if the price of a microscope is $8,000, and it can potentially be divided into two pieces, one $4,500 and the other $3,500, the purchase should be through requisition, not P-card. In other words, split charges are forbidden.
- If multiple copies of one item are purchased and the total price is over $5,000, it cannot be charged to a P-card.

Fraudulent charges on P-card: Each month the P-card is used, the cardholder (PI or designee) receives a bank statement with detailed transactions. (The cardholder also can access this monthly statement online if desired or needed) The cardholder reviews the charges for accuracy and validity. In the unfortunate event of fraudulent charges, immediately notify the bank and communicate this to the MSU P-card Office. Usually the bank terminates the current card, investigates the occurrence, reissues a new card, and credits the account for the questionable charges, if they confirm the fraud claim.

Monthly reconciliation: Monthly charges are uploaded in the Banner accounting system into the default account code 09950. It is the cardholder's responsibility to reallocate them to the respective category types (covered in P-card training). For cardholders with multiple grants, the reallocation calls for the additional step of allocating charges to the appropriate budget code/s and the respective category types (covered in training). Reconciliation typically needs to be processed by the 8th of the month. (However, this date can fluctuate from month to month). A campus-wide email is sent to advise when charges are loaded in Banner and available for reconciliation.

In addition to reconciliation in Banner, the cardholder is required to prepare a monthly P-card reconciliation log (for months when there are charges to the account). The blank log worksheet is provided by the P-card Office. It requires the cardholder and cardholder's immediate supervisor's signatures. Logs are due in the Dean's Office by the 10th of the month and the P-card Office by the 15th of the month. In the event the due date falls on a holiday/weekend, then the next business day is acceptable. If for unforeseeable reason the 15th deadline is impossible, immediately email the P-card Office.

MSU procurement rules

The goods and services paid for using grant and contract funds must be procured according to Maryland laws and the Morgan State University Procurement Policies and Procedures. Detailed information about the procurement rules can be found in this link. A summary of the salient points can be found in this link.

Generally, competition and bidding is required, unless a sole source is established. Some salient rules, by the price of goods and services, are summarized below:

- ≤ $2,500: Usually using P-card, unless the vendor does not accept P-card or a contract needs to be signed. Obtain two quotes; could be via phone.
- > $2,500 but ≤ $5,000: Usually using P-card, unless the supplier does not accept P-card or a contract needs to be signed. Obtain two, or preferably three quotes.
- > $5,000 but ≤ $10,000: Requires submitting a requisition; needs to be on Bid Board for at least 3 days; usually takes 3 to 10 days for approval.
- > $10,000 but < $25,000: Requires submitting a requisition; needs to be on Bid Board for at least 10 days; usually takes 10 to 20 days for approval.
- ≥ $25,000 but < $1,000,000: Requires submitting a requisition; needs to be on eMarylandMarketplace [eMM] for 20 days; usually takes 20 to 60 days for approval.
- ≥ $1,000,000: Needs approval from the State of Maryland Board of Public Works.

A well-documented purchase requisition should indicate that there is need for an item, that funds are available, and the item is allowable and allocable to the research project. If approved, the requisition will become a purchase order, a legal document that obligates the University to pay the vendor when the goods or services are delivered. After delivery, the vendor submits an invoice, which should be approved by the PI. It is only then that Accounts Payable will request the State to pay the vendor. This can be a lengthy process.

Additional important notes:

- **Furniture:** If the sponsored project allows for purchase of furniture, MSU rules dictate that they be purchased from the Maryland Correctional Enterprise.
- **Food:** Food services for University functions shall be furnished by the University's food service contractor (currently SodexoMagic). Catering will be paid for using a requisition.
- **Travel:** Purchasing airline tickets using federal funds must abide by Fly America Act and use American Flag Carriers.
- **Travel per diem:** These should follow the State of Maryland rules. See the University Office of Comptroller's travel website.

Sole source vs. bidding: Sometimes bidding may not be necessary if only one vendor can provide the requested goods or service. Examples include: when the vendor has a proprietary information; when the supplies need to be compatible with already purchased equipment; or when the new results should come from the same lab that did the previous work (for consistency and scientific reasons). The use of sole source is governed by procurement law and such purchases may be particularly scrutinized to ensure compliance. When a sole source request is submitted, a Sole Source Justification must accompany the requisition. It is the Procurement Officer that will make the final determination of a sole source request.

Scientific conduct of the study

Scientific conduct of the study varies substantially. In general, the methods should follow what is written in the proposal. If there is substantial deviation from the original plan, for example when the objectives of the study change, that may constitute a Change of Scope. In such situations, approval from the sponsor is usually needed.

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Financial integrity, academic and scholarly integrity, and compliance

MSU expects all PIs and other investigators to show extreme integrity in all aspects of research, including:

- Maintaining financial integrity;
- Avoiding conflict of interest;
- Avoiding scientific misconduct, such as fabrication, falsification, and plagiarism;
- Abiding by all rules of research in human subjects;
- Abiding by all rules of vertebrate animal research;
- Maintaining all safety standards with regards to potentially hazardous chemicals and radiation safety;
- Keeping good records of the experiments and data collection;
- Maintaining safeguards against dissemination of private data.

Further information about each of these elements are provided in the next chapters of this document.

Reporting

During the project, three types of reports are typically submitted:

- **Programmatic reports** discuss the progress of the work. **The PI** is responsible for preparing these reports. Such reports are submitted at regular intervals (often annually or quarterly, per requirements of the funding agency). In some cases, the PI submits the reports to the funding agency directly, but some agencies (e.g., NIH) require that the report be submitted to them by the Authorized Organizational Representative. Each agency may have a different name for the report. For example, the NIH calls these reports Research Performance Progress Reports (RPPR) and requires that they be submitted annually;
- **Financial reports** show how much funds are spent. Such reports are also submitted at regular intervals (often annually or quarterly, per requirements of the funding agency). These reports are submitted to the agency by the MSU Office Restricted Funds Accounting.
- **Time and effort reports** document the percentage of time that personnel have spent on the grant. Typically, the report is prepared and sent to the PI. After review for accuracy, the PI certifies the report.

Close out

Exhausting the funds or reaching the expiration of period of performance does not equal completing and close out of the project. For a sponsored project to be closed out properly, the PI must ensure that the following requirements are met:

- All technical and financial reports required by the sponsor have been submitted on time. ORA requires copies of technical reports;
- Any sponsor requirements for the transfer or disposal of property purchased through the award have been met;
- Patent or copyright procedures, if applicable, have been followed;
- Proper termination procedures have been followed for contractual personnel who are hired only for the duration of the award.

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CHAPTER 7: PRINCIPLES OF FINANCIAL COMPLIANCE

Sponsored projects that MSU receives must comply with financial rules and regulations set forth by the sponsor, the State of Maryland, and the MSU policies and procedures.

Sponsor rules

The sponsor often sets clear rules and regulations for spending the funds, which are spelled out in the funding opportunity announcement (FOA), the notice of award (NoA), and the general policies and guidelines of the sponsor.

We will use the NIH as an example. The NIH publishes an FOA for prospective applications, which usually clarifies which items are allowed, and which ones are not. For instance, a certain announcement may stipulate that domestic travel is allowed but international travel is not. It is very important to read the announcement very carefully and plan the budget accordingly. When the award is issued, the NIH NoA always stipulates that all rules and regulations set forth in the NIH Grants Policy Statement (NIH GPS) must be followed. For example, the NIH GPS clearly stipulates that its award funds cannot be used to purchase alcohol for entertainment purposes. In addition, each NIH award usually has a section discussing the rules and restrictions for that certain award. For example, the NoA may state that: *"None of the funds in this award shall be used to pay the salary of an individual at a rate in excess of the applicable salary cap. Current salary cap levels can be found at the following URL: http://grants1.nih.gov/grants/policy/salcap_summary.htm ....FOREIGN TRAVEL: Foreign travel is not allowed…"* All of the above must strictly be abided by.

State rules

MSU is an agency and instrumentality of the State of Maryland. Accordingly, MSU financial transactions must follow the State's rules. For example, the State of Maryland requires that all furniture be procured from the Maryland Correctional Enterprise (MCE), unless a waiver is granted. Purchasing furniture from the MCE may not be required by the sponsor, but it is required by the State, and must be followed. Likewise, the State has many other procurement rules about obtaining multiple quotes, the number of days each bid has to be advertised, etc.

MSU rules

In addition to the sponsor and State rules, MSU has its own financial rules and regulations, which must be followed. For example, hiring any individual at MSU requires multiple signatures (e.g., from the respective department chair, dean, and vice president), and the hiring offer is signed by the University President.

Case Study 1: International travel using a grant

A PI decides to use his NIH research grant funds to give a lecture about his study findings in Japan. What needs to be checked, and who does that?

- The PI first needs to ensure that the grant allows for international travel. Such information is usually included in the FOA, NoA, and budget justification. This is a **federal-level (sponsor)** rule.
- The University's Export Control Policy must be adhered to.

- If allowed, the PI needs to estimate the travel costs through completing a travel request form and check if there is enough money in the travel line (04) in BANNER. (If there are not enough funds, if allowable, funds may be transferred from other lines.)
- If the travel is happening during the academic year, the PI needs to get permission from his/her supervisor for absence during the travel period. The supervisor signature is requested on the travel form. This is a reasonable **MSU-level** requirement.
- A travel request form is submitted via DocuSign and will be signed by the PI or his/her designee, the supervisor (to show approval), and the ORA Budget Officer. The ORA Budget officer checks if there are enough funds, and that this grant allows for international travel. This is an **MSU-level** requirement, for the purpose of having an **Internal Control 1**.
- The travel request form is then routed to the Office of Comptroller who reviews adequacy of funds and signatures, serves an **Internal Control 2**, and issues a TL#.
- With the TL# in hand, the traveler can contact GlobeTrotter, the State of Maryland's Travel Agency, to book a flight. This is a **state-level** requirement.
- For international travel, NIH requires compliance with the Fly America Act, which simply requires flying with a United States Flag Carrier. GlobeTrotter will choose only such carriers, unless exceptions are allowed. This is a **federal-level** requirement.

	Office (Person)	**Role**
1	Initiator (Admin)	• Initiates the travel request, per the PI.
2	PI (can be the initiator)	• Approves that he/she made this request, and that it is in accordance with the terms and conditions of the award.
3	The Traveler's supervisor	• Approves that it is OK for this person to travel on the specified dates.
4	ORA Budget Officer	• Make sure that this is the correct budget code, has enough funds in it, and the request is consistent with the NoA and federal and state rules.
5	Office of the Comptroller	• Generates the TL number. • Advises the PI or admin.
6	PI/staff with State Travel Agency (GlobeTrotter)	• Books all flights after the TL number has been generated.
7	PI/staff	• Use purchase card for as many of the traveler's expenses as possible (e.g., hotel, conference registration); this minimizes the need for reimbursement.
8	Traveler/admin	• Submits Maryland State request for travel reimbursement form to Accounts Payable. • **Include the employee's home address** on the reimbursement request, NOT the university's address. • Also, complete SSN is required by the State. If you only put the Banner/MSU ID, then AP staff will have to look up and include the SSN.

The process is summarized in the table above. In short, there are federal, state, and MSU requirements that must be followed. A summary of MSU processes is shown in "MSU PI Handbook, Part 3: Grant Processes."

Case Study 2: Purchasing a piece of equipment using a grant

A PI decides to use her NIH research grant funds to purchase a piece of sophisticated equipment, with a price tag of $150,000. What needs to be checked, and who does that?

- The PI needs to ensure that this purchase is allowable and allocable to the grant. Usually such an expensive piece of equipment needs to be written into the grant, and approved by the NIH. This is a **federal-level** approval. Supporting evidence can be found in the budget justification.
- If not written into the grant, then the PI may need to ask the NIH program director for prior approval, as spending funds on a piece equipment of over $25,000 may be considered a case of Change of Scope. This is a **federal-level** requirement. The ORA Budget Officer requires reviewing of this prior approval before approving the purchase requisition.
- Even if the equipment is written into the proposal, it may be a bad idea to purchase it close to the end of the grant period (e.g., within the last three months). It is difficult to justify how this equipment is allocable to this grant (used for this grant) if it is purchased close to the end. This may become an issue if **audited** by the **federal government**.
- If the equipment is too large (for example it needs a tall ceiling) or has certain installation or maintenance requirements, the PI needs to check with the department chair for space and with the Physical Plant for maintenance.
- The PI or designee will check BANNER if there are enough funds in the appropriate line for purchasing the equipment.
- The **State** and **MSU** procurement requirements need to be followed. Purchasing such an equipment needs creating a purchase requisition, which is reviewed by the ORA Budget Officer (**Internal Control 1**) for availability of budget, allowability by the grant, and review of quotes (**MSU-level rule**). Then the Office of Procurement will review the request, and will need to bid for a certain period of time, unless there is a legitimate sole source justification for purchasing the equipment from a certain vendor. This is a **state-level** requirement. Office of the Procurement will serve as **Internal Control 2**.
- After appropriate bidding is done (or sole source is established), the purchase requisition will turn into a purchase order, which binds the University to pay the vendor after the equipment is sent to the University and is in working condition.
- After the equipment is received and the PI determines it is functional and all obligations are completed, he approves the vendor's invoice, and sends it to the Accounts Payable. After reviewing all documents, the Accounts Payable will request the State of Maryland to issue the check to the vendor. MSU does not issue checks; it is the State that does that. This is a **state-level** rule.
- Finally, property control needs to tag the equipment.

The process is summarized in the table in the next page. Again, there are federal, state, and MSU requirements that must be followed. A summary of MSU processes is shown in "MSU PI Handbook, Part 3: Grant Processes."

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	Office (Person)	Role
1	Initiator (Admin)	• Obtains 3 quotes. If sole source, that must be justified. • Checks in Self Service Banner (Finance tab > requisition > code look up) if there is a Vendor ID. If not, the Vendor ID Request form needs to be completed and sent to Procurement.
2	Procurement Officer	• Issues a Vendor ID if need be.
3	Initiator (Admin)	• Submits the requisition using the Vendor ID and appropriate documentation.
4	PI/PD (can be the initiator)	• Approves that he/she made this request, and it is in accordance with terms and conditions of the award.
5	ORA Budget Officer	• Makes sure that this is the correct budget code, has enough funds in it, and the request is consistent with the NoA and federal/state rules.
6	Procurement	• Determines if the sole-source request is justified, and, if not, whether the correct process has been followed for the vendor selected. • Issues Purchase Order and sends to vendor and initiator.
7	Initiator (Admin)	• Notifies vendor that Purchase Order is ready and arranges for equipment delivery with relevant parties (investigator, property control, etc.). • After equipment is delivered and checked to make sure it works, initiator will request invoice from vendor (if vendor has not already provided one) and will submit it to Accounts Payable for processing. The invoice has to have the PO#.
8	Accounts Payable	Submits a request to the State to pay the invoice. They will also notify the PI the payment has been processed.
9	Initiator (Admin)	Confirms that the State paid the invoice, and confirms in Banner that the funds were charged to the appropriate encumbrance.
10	Property Control	Tags the equipment.

CHAPTER 8: PRINCIPLES OF HUMAN SUBJECTS RESEARCH

Surveys of MSU students for factors causing anxiety in freshmen, studying methods of smoking cessation in communities around MSU, and clinical trials of new drugs are all examples of studies involving human research. There are three main ethical principles in studies of human subjects, which are: 1) respect for persons; 2) beneficence; and 3) justice.

Respect for persons means to accept the decisions of individuals who are capable of making decisions (autonomy) and protecting those who cannot make decisions. Individuals who can make decisions for themselves are autonomous with regards to involvement in research. They will decide whether they want to enter the study, and they can leave any time they decide. Adequate information must be provided to them so that they can make the right decision.

If a person is still too young to make decisions (e.g., a 3-year-old child) or has lost the capacity to make decisions (e.g., such as a case of Alzheimer's disease), they need to be protected. There should be safeguards in place to ensure that the potential benefits outweigh any risks in research involving these subjects.

Beneficence, in the context of human research, means ensuring that risks to study participants are minimized and benefits are maximized. For example, a study of vaccines on humans does not start on thousands of individuals. There will be studies in cell cultures, small animals, large animals, a small number of individuals (e.g., 30 to 100 in Phase I trial), a larger number of individuals (e.g., 200 to 500 in Phase II trial) before the vaccine is tested in tens of thousands of individuals (in Phase III trial). Those initial steps, which may make the testing of the vaccine very lengthy and expensive, are done to ensure that it is very likely that the vaccine will have a good positive effect, and that it is very unlikely that it will cause harm.

Justice, in human research, means that who receive the benefit of research should be those who burden any potential risks. It is difficult to define "those who". Is it based on age, race, poverty level, religion, health, or other factors? However, this principle stems from inequities that have been seen in the past. For example, during the 19th and early 20th centuries, it was mostly the poor ward patients who burdened the risks of research but benefits were given primarily to those were wealthy and could use the new treatments. Studies in Nazi concentration camps, syphilis studies in Tuskegee in the 1940s, and hepatitis studies of the vulnerable people in the 1940s are other famous examples of injustice.

Mechanisms of ensuring protection of human subjects

All studies of human subjects are required to be submitted for approval by an Institutional Review Board (IRB). Some studies may be exempt from review by the entire Board but that decision is made by the IRB Chair, not the PI.

In accordance with the Principle of Respect for Persons, the PIs are responsible for preparing an "informed consent" that will be reviewed and signed by the study participant. This informed consent, as the name implies, has adequate information about the study (purpose, risks, benefits, PI, the autonomy to enroll and to exit the study), and should be easily comprehensible at an 8th grade level.

In accordance with the Principle of Beneficence, the PIs must review all potential risks and benefits of the study, try to minimize any risks, detect the risks early and remediate them with the best available methods.

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In accordance with the Principle of Justice, the PIs should review the populations enrolled in the study. Every attempt should be made to enroll individuals fairly. Special consideration should be given to ensure that certain vulnerable groups – such as racial minorities, the economically disadvantaged, the very sick, and the institutionalized – do not shoulder the risk burden disproportionately.

Human subjects in research at MSU

MSU adheres to a rigorous policy for the protection of human research subjects in accordance with the United States Department of Health and Human Services regulations, 45 CFR 46. All research projects involving human subjects that are conducted under the auspices of the University, regardless of the funding source, must be reviewed and approved by the Institutional Review Board (IRB). The ORA is the administrative unit responsible for coordinating the functions of the IRB.

Proposals involving human subjects should be submitted to the ORA for assignment to the appropriate IRB, including the proposed research protocols and informed consent forms. A model consent form necessary for documenting informed consent of human subjects can be found in this link. Copies of the consent form may also be obtained from ORA or from the ORA webpage.

PIs should allow at least 30 days for completion of IRB review. Following IRB review, the PI will be advised of the outcome in writing, whether approval, disapproval, or deferred approval with suggestions for modifying the proposed protocol. Under no circumstances will a research project involving human subjects be allowed to proceed without prior IRB review and approval.

Questions regarding IRB Process may be directed to the IRB Administrator at 443-885-4340.

NIH has a requirement for documentation of education on the protection of human research participants for all investigators who submit NIH applications for grants or contracts and receive new or non-competing awards for research involving human subjects. A convenient and free online tutorial for meeting this requirement is available at: Protecting Human Research Participants (http://phrp.nihtraining.com).

Further reading

Further information about principles of human studies is provided in this link.

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CHAPTER 9: PRINCIPLES OF ANIMAL VERTEBRATES RESEARCH

MSU has an animal facility and conducts research on animal vertebrates. There are 3 principles of vertebrate research, known as the 3 Rs: Replace, Reduce, and Refine.

Replace: This principle recommends replacing vertebrate animals with invertebrates, lower life forms, tissue/cell cultures and/or computer simulations where possible.

Reduce: The investigators should attempt to reduce number of animals, while making sure that the study has adequate power to detect the potential effect. A careful analysis should be done.

Refine: This principle stipulates that the experimental protocol should be designed to minimize pain or distress to the animals. For example, local anesthetics may be applied before a painful biopsy is done.

Use of vertebrate animals in research

Federal regulations require that the University assures the humane care and use of animals as research subjects in accordance with the Animal Welfare Act (P.L. 99-158). The Public Health Service (PHS) Policy further requires that institutions must have on file in the Office for Protection from Research Risks (OPRR) of the NIH an approved Animal Welfare Assurance document before they can receive PHS research funds.

Vertebrate animal research at MSU

The policy of MSU is to take appropriate measures for the proper care and humane treatment of animals used in research, testing, and education conducted under the jurisdiction of the Institution. To ensure compliance with this policy, the University has established the Institutional Animal Care and Use Committee (IACUC), which has the responsibility for monitoring and approving all research protocols that are conducted under the auspices of the Institution involving vertebrate animals.

Prospective investigators whose research may require the use of vertebrate animals should submit their proposals including the protocols to IACUC at least 30 days prior to sponsor deadlines to allow enough time for the IACUC Committee to review the proposal protocols. Questions regarding the use of animals in research may be directed to the IACUC Chairperson at 443-885-2276.

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CHAPTER 10: EXPORT CONTROL

Definition and Purpose

Export control refers to the United States laws that regulate and restrict the release of critical technologies, information, and services to foreign countries or to foreign nationals, within and outside of the United States. Such controls are imposed for reasons of foreign policy and national security. Although federal laws restricting exports of goods and technology have existed since the 1940s, the federal government has begun placing more emphasis on enforcement generally, and in particular, at universities.

The preponderance of teaching and research activity at MSU is covered by one or more of several exclusions within the export control laws. However, it is important that PIs understand how the laws (and the exclusions) may apply to their activities, and how the ORA can assist them.

Federal departments enforcing export control laws

There are three (3) different federal departments responsible for enforcing the export control laws: the Department of Commerce, through its Export Administration Regulations (EAR); the Department of State, through its International Traffic in Arms Regulations (ITAR); and the Department of Treasury, through its Office of Foreign Assets Control (OFAC).

Broadly speaking, the **EAR** is intended to limit the export and deemed export of **"dual use"** items and information. The term, "dual use", generally means items and information the government has designated as having legitimate commercial purposes, but that also can have potential military applications when received or obtained by particular individuals, or for particular purposes, or within particular countries (e.g., certain computers, software, chemicals and biologics).

The **ITAR** govern items and information that are **inherently military** in nature, according to the government (e.g., encryption technology).

OFAC enforces **economic and trade sanctions** against countries that are "embargoed" and individuals on "specially designated nationals" lists (generally, individuals and organizations the government has listed as terrorists, international narcotics traffickers, or those involved in or supportive of activities advancing the proliferation of weapons of mass destruction).

Items of interest in export control

In general, export control regulations apply to:

- Transfer or "export" of specified items or information to people or entities outside the United States;
- Disclosure of certain information to certain foreign nationals inside the United States (often called "deemed export");
- Training or offering of services involving controlled equipment or information to foreign nationals;
- Transactions with, or provision of services to, certain foreign countries or individuals who are on embargo lists.

If an activity does not come within an exception or exclusion, the PIs may need to obtain a license from the government. Obtaining a license can take anywhere from six weeks to more than twelve months,

depending on the particular facts. Sanctions for noncompliance can include civil and criminal penalties (including fines and/or prison sentences for individuals) and administrative penalties (loss of research funding).

Exclusions

While the regulations are broad and apply to virtually all fields of research and teaching, sponsored or not, the vast majority of research and teaching activities at MSU do not require a license. There are several significant exclusions to the licensing requirements, such as:

"Fundamental Research" exclusion. Generally, an export license is not needed to conduct basic and applied research in science and engineering at MSU (including work with foreign nationals), provided that there are no restrictions on access by students or others to, or publication of, the research results; the research is carried out openly; and the results are intended to be, and ordinarily are, published or shared broadly within the scientific community.

"Public Domain" exclusion. Generally, an export license is not necessary before sharing technical data or information with a foreign national inside the U.S. as part of a class instruction, laboratory, or conference or seminar, if the same technical data or information has already been published widely, or is available in libraries or through newsstands, bookstores, subscriptions or free web sites, or is disclosed in published patent applications

"Teaching" exclusion. In general, ITAR exempts information (but not technology and materials) which is "general scientific, mathematical or engineering principles commonly taught in universities." A closely-related EAR exclusion concerns "educational information" released by instruction in catalog courses and associated teaching laboratories. Thus, in general, in addition to not needing a license to share information as part of a course offering, most foreign nationals may also be trained on how to use most otherwise-controlled scientific equipment as part of that class or lab instruction.

However, this "teaching exclusion" does not apply to non-public domain information and certain information deemed classified or sensitive by the federal government.

Most items and information a university researcher might want to physically export outside the U.S. will not have a "dual use" and will fall under a broad exception to the EAR licensing requirement. However, it is advisable and prudent to consult with ORA for guidance in determining if a license might be necessary if the item or information comes within one or more of the following broad categories: nuclear materials, information, and equipment; chemicals, microorganisms, or toxins; materials processing; electronics; computers; telecommunications and information security; lasers and sensors; navigation and avionics; marine items; and propulsion systems, space vehicles and related equipment.

In addition, a license is not generally needed to travel to, conduct research in, spend money in, and take equipment to, most foreign countries as normal part of teaching and/or research duties. However, OFAC restrictions apply to a limited number of "embargoed entities" and "specially designated nationals", which should be checked as part of planning for activities with people or groups outside the U.S. Currently, OFAC restrictions apply to certain activities in the Balkans; Burma; Cuba; Iran; Iraq; Liberia; Libya; North Korea; Sudan; Syria; and Zimbabwe. Updates to the "embargoed entities", and the specific limitations for each country, may be checked at: https://home.treasury.gov/policy-issues/office-of-foreign-assets-control-sanctions-programs-and-information; and the "specially designated nationals"

lists may be scanned at https://home.treasury.gov/policy-issues/financial-sanctions/specially-designated-nationals-and-blocked-persons-list-sdn-human-readable-lists.)

The ORA is responsible for helping the community understand and comply with export control laws.

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CHAPTER 11: OTHER COMPLIANCE

The University has assurances, certifications, and other mechanisms in place for other matters that need compliance, including for hazardous materials and biosafety, radiation safety, and use of recombinant DNA.

Assurances and certifications

The Vice President for Research and Economic Development and the Assistant Vice President for Research Administration are the Authorized Organizational Representatives (AOR) to sign supporting assurances and certifications required by sponsoring agencies. The Vice President for Finance and Management signs certifications regarding fiscal matters. The ORA staff will provide PIs whatever assistance is necessary to complete all required assurances and certifications for proposals.

Hazardous materials and biosafety

PIs are expected to exercise all appropriate precautions when working with potentially hazardous materials. Administrations and/or engineering controls must be determined prior to use of such materials. When necessary, the University Safety Director may assign a trained industrial hygienist or other technically qualified persons to provide assistance. All incidents and potentially unsafe conditions must be reported immediately to the Safety Director.

Radiation safety

The Nuclear Regulatory Commission (NRC) has licensed the University to use specific radioisotopes for research, instruction, and training. Under the license, the University has specific responsibilities, which it must fulfill to be in compliance.

A researcher proposing to use radioisotopes must meet the following requirements:

- Ensure that the University is licensed to use the proposed isotope(s);
- Have adequate training in the safe use of radioactive materials;
- Strictly adhere to all requirements for ordering, handling, storing, and disposing of the radioactive material.

Recombinant DNA

In conducting research that involves the use of Recombinant DNA or other hazardous biological agents, PIs must assume the following responsibilities in accordance with NIH guidelines:

- Determine real and potential biohazards;
- Determine the appropriate level of biological and physical containment;
- Select the laboratory techniques and microbiological practices;
- Devise safe procedures to minimize the risk of human and/or environmental contamination;
- Determine the applicability of various precautionary medical practices;
- Obtain approval of proposed research protocol;
- Apply for approval from the appropriate NIH committee on Recombinant DNA;
- Ensure that staff is appropriately trained in both safety practices and in procedures for dealing with accidents;
- Supervise the safety performance of the staff.

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The investigator must promptly report all accidents, extended illness of a worker, or any other incidents that may pose danger to humans or the environment to the appropriate Dean and the Vice President for Research and Economic Development, who will in turn alert the Biohazards committee and other relevant institutional authorities. A member from ORA will make any required reports to the NIH.

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CHAPTER 12: RESEARCH MISCONDUCT

In the previous sections, we have discussed financial compliance, as well as other aspects of compliance, such as animal welfare. There are other aspects of research that the investigators must be careful about to avoid any research misconduct.

Research misconduct may be categorized as fabrication, falsification, plagiarism, or keeping very poor research records.

Fabrication happens when the recorded or reported data are entirely made up. For example, a bench researcher does not conduct any experiments. Rather, he forges the data, incorporates them into an Excel sheet, and then analyzes and reports them.

Falsification happens when research materials, equipment, or processes are manipulated, or when the data or results are omitted or changed such that the findings are not accurately recorded or represented.

Research is done for the pursuit of truth, just like courts are held for the pursuit of truth. In courts, the individuals who testify are required to "tell the truth, the whole truth, and nothing but the truth." Can you relate fabrication and falsification to this statement?

Research misconduct does not include honest errors or differences of opinion. However, sometimes it is difficult to distinguish between what can be properly dismissed, and what was dismissed with the intent of falsification.

Plagiarism is using other people's ideas, processes, results, or words without giving them proper credit. For example, if a PI uses five (5) paragraphs of someone else's paper verbatim, without putting those paragraphs in quotations and giving proper attribution, it will be considered a case of plagiarism.

Keeping poor research records, when due to negligence, may also be considered a case of research misconduct.

Investigation of research misconduct: The process of handling misconduct matters normally consists of three (3) principal phases: inquiry, investigation, and disposition of findings.

All cases of alleged or suspected misconduct should be reported in confidence to the Research Integrity Officer (RIO, currently Dr. Edet Isuk) in the Division of Research and Economic Development, who has the responsibility for initiating appropriate action(s). The RIO shall endeavor to complete preliminary assessment of an allegation within fifteen (15) days of receiving allegations.

Investigators should consult the ORA publication "Misconduct in Academic Research: Policies and Procedures," for details of institutional policies for dealing with this important aspect of the research enterprise.

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CHAPTER 13: DEVIATIONS FROM THE ORIGINAL PLAN

During the course of sponsored projects, circumstances arise that necessitate a departure from the original plan. For example, the principal investigator may need to be replaced, or funds are not spent according the original plan. In such cases, the sponsor and the University have rules that must be followed.

Change of principal investigator or other key personnel

Sometimes the PI, or other key personnel, need to be replaced. In such circumstances, the new appointment can only be made with the concurrence of the chair, dean, and ultimately, the sponsor. Such requests should be channeled to the sponsor through the ORA.

To request a change of PI, the following information typically needs to be provided to the sponsor:

- The reason for PI change;
- Qualifications of the new PI (e.g., CV or biosketch);
- Percent effort of the new PI;
- Other Support document (to show that the effort will not go above 100%);
- Financial ramifications of the change (e.g., whether the project has adequate funds to support the new PI, who may have a higher salary than the previous PI).

Change in time and effort of key personnel

Sometimes the PI or other key personnel may need to change their effort percentage on a project. There may be an increase in percentage, for example because the initial effort was not enough, or a decrease in effort, for example because the PI has multiple other projects that do not leave enough time for them to spend on the project.

Some sponsors require reporting and receiving prior approval for a substantial change in effort. For example, the NIH requires that any reduction of effort by 25% or more or being absent from the project during a continuous period of three months or more receive prior approval. For example, if a PI is working 40% on an NIH grant, given that 25% x 40% = 10%, any absolute change of 10% or more requires approval. So if the PI wants to spend ≥ 50% or ≤ 30% effort on the project, prior approval is needed.

Any change of effort will be reflected in, and will be approved by, the department chair. If sponsor approval is needed, requests should be channeled to the sponsor through the ORA.

To request a substantial change of effort percentage, the following information typically needs to be provided:

- The reason for change in effort;
- Percent change in effort;
- Documenting how the project will move forward effectively, if the effort is decreasing;
- Other support document, if the effort is increasing;
- Financial ramifications of the change, if the effort is increasing.

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Reallocating budget across budget lines

Sometimes the PI needs to reallocate budget across the budget lines, such as from equipment to supplies. A request needs to be submitted to the ORA for such reallocations. The PI should provide adequate information to show that the reallocation is allowable and will not cause any major issues.

There are some instances that such reallocation is not allowable, unless with explicit permission from the funding agency. For example, the NSF does not allow moving funds out of the Participant Costs, unless a written permission is given.

There are instances where such reallocation may be inconsistent with the terms and conditions of the award. For example, the NSF may not allow for the PI to be paid more than 2 months each year. If funds are added to the salary line, such that the PI is paid more than 2 months, it will be problematic. A written consent needs to be obtained. Likewise, if the PI changes effort by more than 25% on an NIH grant, written permission is needed.

On the other hand, there are many instances that moving funds between the lines is entirely reasonable and will help the project. For example, money might have been considered for a certain equipment. But that equipment is now purchased by the MSU Core Lab, and no money is needed for that any longer. In lieu of that the PI may decide to purchase some allowable supplies that strengthen the project.

To request reallocation of budget across the line, the following information needs to be provided to the ORA budget officer:

- The reason that money needs to be added to the line for which additional budget is requested;
- Showing that removing funds from line from which the budget is deducted will not cause a problem in the management of the project;
- Showing that such reallocation is allowable, consistent with the terms of the award, and will not result in change of scope of the project;
- Proper calculation of budget when reallocation is between lines with and those without indirect costs, such as between equipment and supplies.

Labor Redistributions

Labor redistributions are done to correct any errors in charging salaries or wages to incorrect budget codes.

Occasionally, the salary or wages of an employee might have been charged to an incorrect index and fund. For example, a PI's salary should have been charged 50% to the Department of Chemistry and 50% to an NIH grant, but mistakenly the entire salary was charged to the Department of Chemistry. Upon finding the error, the PI or designee must contact the Office of Human Resources to inform them of the error, and ask to assign the correct percentage of charges to the correct account during the performance period of the work.

Labor redistributions are done during the same fiscal year. Labor redistributions are a form of cost transfer and need to be reported as soon as possible. If they are done late, especially after the effort certification has been done, accounting problems may occur.

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Carry over of funds

Carry over, also known as carry forward, of funds refers to moving the budget that was intended to be spent in one period to the next period. For example, an NIH grant permitted the use of $500,000 in Year 1, but for various reasons, only $350,000 was spent in Year 1. The remaining $150,000 can potentially be carried over to Year 2.

Often the notice of award makes it clear whether permission is needed to carry over the funds. It is important to read the notice of award very carefully.

- Certain awards allow the PI to spend the funds over the entire course of the grant. For example, although an NSF award may be for 3 years, only one notice of award is issued, and the entire fund is available as a letter of credit from day 1. No carry over requested is needed.
- Certain awards are issued annually. Some NIH awards issue the notice and letter of credit annually. However, under the NIH expanded authority, no permission is needed for carry-over. For example, the notice of award for one of MSU's SC2 awards has a statement: "An unobligated balance may be carried over into the next budget period without Grants Management Officer prior approval."
- Other awards are issued annually and if funds are not spent in that period, permission from the sponsor is needed to carry over the funds. For example, the notice of award of one of MSU's UL1 funds reads: "Carry over of an unobligated balance into the next budget period requires Grants Management Officer prior approval."

When needed, to obtain permission for carry over, the following information is typically requested:

- The unobligated balance;
- The reason(s) for not being able to spend the funds;
- The plan for using the funds in the next period, and how they are allocable to the project. The funds should be spent for one-time expenses (e.g., buying an equipment, some supplies, etc) but not for recurring expenses.

No-cost extension

A no-cost extension request is submitted when close to the end of the expiration date of the project, the PI determines that more time will be needed to complete work, beyond the originally planned period of performance. There must be some funds remaining. In such circumstances, a no-cost extension may be submitted to the sponsor, which is requesting more time without requesting more funds. The PI should notify ORA in writing about the need for a no-cost extension at least forty-five (45) days prior to the expiration date of the award. ORA will work with the PI and the funding agency to obtain the sponsor's approval.

NIH automatically approves the first no-cost extension, as long as MSU files the first no-cost extension with NIH in a timely manner. However, NIH grants the second (or rarely the third) no-cost extension only if the application is filed at least 30 days in advance, with a clear explanation of the following:

- "Detailed explanation of why the project could not be completed by the originally approved end date;
- Scientific rationale for continuing the project;

- If requesting a third extension (rarely approved), compelling scientific justification that warrants a third and final extension;
- A brief progress report that communicates scientific progress made from submission of the last RPPR to present;
- Amount of Direct Costs and Facilities and Administrative (F&A) costs remaining (estimated unobligated balance) in U.S. dollars."

Further information for NIH no-cost extension is provided in this link.

NSF approves the first no-cost extension automatically, as long as MSU files the request with NSF in a timely manner (10 days prior to the expiration of the award) and provides the justification. Please note that only the authorized organizational representative can file the request in the electronic system. Some funds must be remaining, and there should be a good scientific reason for continuation.

The second NSF no-cost extension must be filed at least 45 days in advance of the expiration date, and is subject to approval by the NSF program officer. The request must explain the need for the extension and include an estimate of the unobligated funds remaining and a plan for their use.

Further information about NSF no-cost extensions is provided in this link.

Change of scope

Change of scope is one of the most serious changes in any study, and **almost always requires prior approval from the sponsor**. The scope of the study is primarily defined by its objectives as well as the overarching methodology and major technologies used to achieve those objectives. Therefore, the following are usually considered change of scope:

- Changing the study objectives, or adding or dropping some of the objectives;
- Shifting the area of research of the study (e.g., from hypertension to diabetes);
- Changing any aspect of the research involving human subjects or vertebrate animals, such as changing the study vertebrate animals from rats to monkeys.

Also, while the following do not necessarily mean a change of scope, they may indicate change of scope and it is usually prudent to receive prior approval for such items:

- Applying a new technology that has not been vetted by the reviewers;
- Purchasing equipment that cost over $25,000 and are not written into the proposal;
- Changing key personnel;
- Adjusting any key personnel effort by over 25%;
- Rebudgeting funds in or out of a budget category by more than 25% of the total cost of the award.

Transferring projects from other institutions to MSU

A new faculty member may wish to transfer an award from a previous institution to the University. Such a transfer must have the approval of both the sponsor and the previous institution. If approval is granted, MSU treats this as a new grant and the PI should typically send the following documents to the ORA for further processing:

- Information about the previous institution's Office of Sponsored Programs and the person who can be contacted for this purpose;

- Relinquishing documents from the previous institution;
- History of the award (the initial and subsequent notices of award);
- Scope of Work;
- IRB, IACUC, or other approvals as needed;
- Subawardee information, if applicable;
- Current balance and estimated balance at the time of initiation of the project at MSU;
- Remaining budget, budget justification;
- A completed MSU internal routing form.

Transferring projects from MSU to other institutions

Occasionally, a PI may accept an appointment in another institution, while he/she still have active grants and wants to transfer the remaining work and budget to that institution.

Such transfer requires approval of both MSU and the sponsor. If MSU (chair and dean, on behalf of the University) and the sponsor agree to this transfer, then the ORA will work with the PI, MSU Office of Restricted Funds Accounting, and the new institution to provide the relinquishing documents and other information as needed. Approved transfers occur only after final accounting and certification by the responsible grant accountant that all incurred obligations have been settled, and a balance remains for transfer to the new institution.

However, the University may elect to retain the project, in which case a new MSU PI will be appointed to take over the project, following the process described in the preceding section. The departing PI may be retained in the project using a subaward or a consultant agreement.

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CHAPTER 14: SUBAWARDS FROM MSU TO OTHER INSTITUTIONS

Many sponsored projects include subawards to one or more other institutions. For example, the Center for Advanced Electro-Photonics with 2D Materials at MSU, funded by the Department of Defense, included a subaward to Johns Hopkins University. There are some benefits and some disadvantages with giving subawards to other institutions. Some important issues to be considered are discussed in this Chapter.

Benefits of giving subawards to other institutions

Some of these benefits include:

- Access to research equipment and facilities in other institutions that may not necessarily be available at the prime institution;
- Access to highly qualified investigators with expertise that may not be available at the prime institution;
- Enhancing the chance of being funded; and
- Creating teams that lead to gaining more grants over the long term.

Perils and burdens of giving subawards to other institutions

Unfortunately, giving subawards to other institutions is associated with some risks too. The prime institutions accepts responsibility for the work done by the prime as well as the work done by the subrecipients. Therefore, if the work is done poorly in one or more of the subrecipient institutions, or financial integrity of the project is compromised in one or more of the subrecipient institutions, the prime institution will be at substantial risk.

Furthermore, there is often a substantial administrative burden associated with subawards. MSU, as the prime, will be responsible for reviewing the scope of work and budgets for each subaward recipient, issue the subaward, receive financial and technical reports, pay the subaward recipient, etc. Some of these activities are recurring. For example, if the subaward paperwork may need to be issued annually.

Number of subaward recipients and percentage of funds allocated to subawards

While there is no limit on the number of subaward recipients, given the issues discussed above, it is advisable to limit the number of subaward recipients to no more than three (3). Issuing multiple subawards, reviewing the technical reports, reviewing the financial reports, and subaward monitoring will become extremely burdensome with, for example, 15 subaward recipients. Likewise, a high number of subaward recipients makes the risk of failure or fraud in at least one (1) subaward recipient very high.

Also, given the burden and the risk, it is prudent to limit the percentage of all funds allocated to subawards below 30% of the total award. Exceptions can be made to the above-mentioned rules, when absolutely necessary. Please consult with Dr. Farin Kamangar, the Assistant Vice President for Research Administration.

Choosing the right subaward recipients

The PIs need to include subaward recipients that can serve the project best and have the lowest risk.

Serving the project:

- Do investigators at the subrecipient institution have expertise that is important to accomplishing the goals of the study but cannot be found in-house?

- Does the subrecipient institution have facilities or equipment that are essential to accomplishing the goals of the study but cannot be found in-house?
- For training grants, does the subrecipient institution have a certain category of students that are the targets of training grant, but we do not have enough of those students?
- For community development grants, does the subrecipient institution have access to certain sections of the society integral to the conduct of the study?

In short, a clear benefit to the project should be established.

Minimizing Risk:

The risk depends on the subrecipient institution characteristics, previous experience with the subrecipient institution and PI, conflict of interest, and the nature of the project and subaward. For example:

- Domestic subrecipients are preferred over international ones, as many U.S. institutions have higher standards of financial accountability and are more accessible for review and audit.
- Well-established universities and institutions that have long track records of conducting research using federal and state funds are preferred.
- Institutions that have a previous track record of successful and responsible work with MSU are less likely to impose any major risks.
- If the project does not involve human subjects, vertebrate animals, and ITAR/EAR type of work, the risk is smaller.

A list of factors that increase the risk of issuing subawards is shown in the table in the next page. Please review each item and think carefully about issuing the subaward.

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Subrecipient Risk Matrix

Risk Criteria	Low	Medium	High
Institutional Characteristics			
Domestic or Foreign entity	Domestic	----------	Foreign
Organization type	Major research university or other organization with a strong track record of managing grants and contracts	Small universities or other organizations with some research experience	Start-up companies, or those with little to no research experience
Single audit, or agreed upon procedures	No findings	Minor findings	Significant findings, or no audit
Procurement systems	Approved	Not approved, but has policies and procedures	Questionable
Prior Experience with MSU			
Prior experience with the subrecipient institution - Quick responses - Delivering items - No issues with draw downs	Good or great experience	Good experience but new personnel or systems	No experience, or poor experience
PI's previous experience with the subrecipient PI	Good and extensive	Good but limited	None or poor
Conflict of Interest			
PI's conflict of interest	No	----------	Yes
Project and Subaward Characteristics			
Dollar value of the subaward	<$150K	$150K to $750K	>$750K
Percentage of total subaward	<5%	5% to 10%	>10%
Fixed cost vs. cost reimbursable	Fixed Price contract less than $150K	----------	Cost Reimbursable contract
Award type	Grant and cooperative agreements	----------	Contract
ITAR/EAR type of work	No	----------	Yes
IRB/IACUC Compliance	No	----------	Yes
SOW & deliverables	Reports only	----------	Tangibles
Cost sharing	0%	1% to 20%	> 20%

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How to issue subawards

The details of the process of issuing subawards is presented in "MSU PI Handbook, Part 3: Grant Processes." In short, the PI will work with Mr. Matthew Lee, the Contract Specialist at the ORA, to issue the subaward to other institutions. The following documents are needed: scope of work, budget, budget justification, and contact information for the responsible people in the subrecipient institution.

It is important to have a very clearly written Scope of Work. The subaward recipients should know what exactly is expected of them. It is prudent to include the following: a) objectives of the subaward; b) deliverables; c) reports that are due and their intervals; and d) evaluation of the work.

Subaward recipient choice and monitoring

Subaward recipient choice and monitoring is the collective responsibility of the PI, the ORA, and the Office of Restricted Funds Accounting.

- PI:
    - Communicate frequently with the subrecipient PI to ensure progress of the work
    - Receive and review technical reports regularly
    - Determine if the work is progressing reasonably, or the subaward should be terminated
    - PI confirms PO number for the subaward recipient
- ORA:
    - Complete Subaward recipient information form
    - Confirm the subaward includes a statement of work
    - Confirm the subaward includes the budget and budget justification
    - Confirm reporting requirements with MSU PI
    - Confirm subaward recipient status in SAM.gov

- Office of Restricted Funds Accounting:
    - Assist PI with confirming requisition status
    - Assist PI with confirming PO
    - Assist PI with confirming that payments have been processed

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CHAPTER 15: AUDIT TRIGGERS

MSU requires that PIs follow the rules for all matters of compliance, financial and non-financial. MSU has established strong internal controls in place to assure such compliance. Some examples are provided in earlier chapters and in the next chapter.

While we abide by all matters of compliance, there are some issues that are very high risk and trigger a deeper dive during financial audits, some of which are discussed here.

Substantial spending near the end of the period of performance

Any expenditure charged to a certain grant budget, as stated in § 200.403, must be "necessary and reasonable for the performance of the Federal award and be allocable thereto under the cost principles." In other words, the expenditures should be done to accomplish the objectives of that grant. Substantial expenditures near the end of the performance period raise suspicion about allowability and allocability.

For example, let's discuss a 3-year NIH-funded project. The PI writes into the grant that they will purchase $100,000 of supplies to accomplish the study objectives. The PI spends $75,000 of the supplies money in Year 3, only 2 months before the project is going to end. Auditors can easily find that and question whether those supplies were used to accomplish the objectives of that particular project.

MSU requires the investigators to ensure that all expenses are allocable to the correct project, and expenses be made in a timely manner. If some objectives of the project are not finished, a request for no-cost extension should be submitted.

Excessive cost transfers

A cost transfer is transferring an expense from one account to another, after the expense was initially recorded in the accounting system. For example, the PI's salary is initially charged to an MSU State account, but later charged to his DoD grant account.

Cost transfers are sometimes legitimate, and are done to correct a clerical or other errors. However, they may be abused as well. For example, the PI may have some extra money remaining in their DoD account, and decide to charge that account.

Because of the potential for abuse, federal agencies are sensitive to cost transfers. They ask that cost transfers happen in limited circumstances, a clear justification be provided, and corrections be done no more than 90 days after discovery of the error. For example, the NIH Grants Policy Statement (NIH GPS) states that: "*Cost transfers to NIH grants by recipients, consortium participants, or contractors under grants that represent corrections of clerical or bookkeeping errors should be accomplished within 90 days of when the error was discovered. The transfers must be supported by documentation that fully explains how the error occurred and a certification of the correctness of the new charge by a responsible organizational official of the recipient, consortium participant, or contractor. An explanation merely stating that the transfer was made "to correct error" or "to transfer to correct project" is not sufficient. Transfers of costs from one project to another or from one competitive segment to the next solely to cover cost overruns are not allowable.*"

Cost Transfers are often scrutinized by the auditors. They can easily see if:

- There were errors in transactions;

- If the correction was done in a timely manner (< 90 days);
- If transfers of salary expenses (also known as labor redistributions) happened after effort certification;
- If transfers were done for convenience, for example close to the end of the performance period, or after the project ended;
- If transfers were made to split the cost between projects; or
- There was intent for fraud.

Accordingly, MSU requires the PIs to:

- Make every effort to limit cost transfers to a minimum;
- Provide a clear justification for the cost transfer;
- Submit the request within 90 days of the discovery of the error, and:
- Provide a plan for reducing the possibility of future errors.

Food and other entertainment expenses

Spending federal project money for food and other entertainment is generally unallowable.

Food may be allowable on research grants under limited circumstances, including the following:

- For subjects or patients under study only if charges are not duplicated in participant's per diem;
- It is an integral part of a meeting or conference (i.e., a working meal where business is transacted);
- It is approved as part of the project activity, consistent with the terms of award. For example, this could be for a nutritional study.

However, in most other scenarios, food is unallowable. For example, food for weekly lab meetings to attract more faculty, staff, and students is unallowable for NIH grants.

In general, all charges should be allowable, allocable, and reasonable. Auditors may scrutinize any expenses. However, some expenses, such as food and entertainment expenses, are easily found and may subject the project to further audit.

Administrative and clerical salaries

Salaries of administrative and clerical staff are normally considered as indirect (F&A) costs. Direct charging to federal grants may be allowed only if all of the following conditions apply:

- Administrative or clerical services are integral to the activity;
- Individual involved can be specifically identified with the project;
- The costs are explicitly included in the budget; and
- They are not recovered as indirect costs.

International travel

Some grants do not allow for international travel. The notice of award has to be checked.

Expensive equipment not written into the grant

Purchasing expensive equipment ($25,000 or more) that is not written into the grant may be considered an indicator of Change of Scope. It is advisable to receive prior approval for purchasing major equipment that is not already written into the grant.

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Cost sharing

Cost sharing is another issue that may be highly scrutinized during audits. Cost shares must meet the following criteria:

- Being easily verifiable from the University's accounting records. For example, if 25% of the time of a faculty member is allocated to this project, but funded by the University (not the sponsor) as cost share, the records need to show that;
- Allowable as cost to the project;
- Not paid by another federal grant;
- Not used as cost shared for another project.

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CHAPTER 16: MSU SAFEGUARDS FOR COMPLIANCE

In order to protect the integrity of research, financial or otherwise, MSU has adopted a series of strategies, including the following:

- Writing well-designed policies and procedures;
- Establishing strong fiscal internal controls;
- Designating compliance officers and compliance committees;
- Providing effective training;
- Developing effective lines of communication;
- Conducting internal monitoring and auditing;
- Undertaking prompt actions in response to detected offenses; and
- Defining oversight roles and responsibilities.

Below, we will detail what MSU has done under each of the above-mentioned topics.

Writing well-designed policies and procedures

MSU has a list of policies that are approved by the Board of Regents. There are also other detailed guidelines that are developed by the Division of Research and Economic Development (D-RED). These policies and guidelines, which are included in their entirety in "MSU PI Handbook, Part 5: Board Policies and D-RED Guidelines" are:

- Misconduct in Academic Research
- Conflicts of Interest in Research and Development
- Intellectual Property
- The Protection of Human Subjects in Research
- Export Control
- Cost Sharing
- Cost Transfers
- Cost Overruns
- Expenditures for Sponsored Award-Related Goods and Services
- Procedures and Requirements
- Modification and Revision of a Sponsored Project
- Retention and Disposal of Records for Grants, Contracts and Cooperative Agreements
- Unallowable Costs
- Effort Reporting
- Collection of Outstanding Account Receivables
- Residual Balance
- Solicitation and Acceptance of Sponsored Projects and Gifts
- Extra Compensation on Sponsored Projects
- Travel
- Limited Submissions

In addition, substantial information on issues of compliance, and policies and procedures are provided in this MSU PI Handbook and several other handbooks.

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Establishing strong fiscal internal controls

MSU is an agency and instrumentality of the State of Maryland. For each process, multiple internal controls are in place. Two examples are provided in Chapter 7 of this Handbook (Principles of Financial Compliance), which discuss detailed information about internal controls for travel and purchase of equipment.

MSU has implemented similar internal controls for all other processes, as described in the "MSU PI Handbook, Part 3: Grant Processes." The procedures have been established such that internal controls are in place, while these controls do not make the process ineffective or inefficient.

Designating compliance officers and compliance committees

MSU has several compliance officers for various research-related activities:

- Dr. Edet Isuk: Is currently the Director of Compliance and the Research Integrity Officer (RIO). He supervises all compliance-related matters in D-RED, including renewal of required certifications, the receipt and processing of all human subject study approvals, and research misconduct;
- Dr. Ingrid Tulloch: Directs the animal facility and ensures animal welfare;
- Safety Officer (TBD, until recently Mr. Chris Evans): Serves as the Safety Officer and reviews all matters related to hazardous materials and radiation safety;
- Ms. Deshun Li: Reviews sponsored projects budgets and funding opportunity announcements (FOA) to ensure that the budget complies with the FOA requirements;
- Ms. Ailing Zhang: Reviews all grant submissions for accordance with the rules and regulations of the sponsor and the University;
- Mr. Matthew Lee: Reviews all contracts and subawards for accordance with the rules and regulations of the University and the State of Maryland;
- Ms. Lucy Manyara and Ms. Shamon Shine-Lee: Review all grant-related expenditures to ensure that the expenses are allowable.

Furthermore, the University has:

- An Office of Procurement that reviews all transactions to ensure that all research-related procurements abide by the standards set by the State of Maryland;
- An Office of Purchase Card;
- An Office of Restricted Funds Accounting that reviews the grant budgets, issues the fund and index only if certain requirements are satisfied, and invoices only when the funds have been spent;
- An Office of the Comptroller that reviews all travel requests and other financial matters of concern;
- An active Institutional Review Board (IRB) that reviews all human subjects study applications;
- An active Institutional Animal Care and Use Committee (IACUC) that reviews all vertebrate animal research.

Therefore, all financial and non-financial compliance matters are reviewed by independent individuals, offices, or committees.

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Providing effective training

ORA provides continuous training for faculty, administrators, and staff on research-related matters. Some examples include:

- Post-award briefings: After each grant, contract, or cooperative agreement is awarded, the PIs attend a mandatory post-award briefing to discuss the terms and conditions of the award;
- Monthly ORA seminars: Various grant-related topics are discussed in these seminars. On average 70 MSU faculty and staff attend each seminar.
- Various grant-related workshops for the ORA staff and the University budget officers.

Developing effective lines of communication

The following D-RED officials have an open-door policy and will attend to all allegations of abuse, fraud, or misconduct:

- Dr. Edet Isuk, Director of Compliance and RIO
- Dr. Farin Kamangar, Assistant Vice President for Research
- Dr. Willie May, Vice President for Research

Also, there is a link "Report Waste and Fraud" on the first page of MSU's website.

Conducting internal monitoring and auditing

Financial and non-financial monitoring is done, as discussed earlier in this Chapter. The University has an Internal Audit Team, led by Mr. Abraham Mauer.

Undertaking prompt actions in response to detected offenses

The process of handling misconduct matters normally consists of three (3) principal phases: inquiry, investigation, and disposition of findings. All cases of alleged or suspected misconduct should be reported in confidence to the RIO (currently Dr. Edet Isuk) in the Division of Research and Economic Development, who has the responsibility for initiating appropriate action(s). The RIO shall endeavor to complete preliminary assessment of an allegation within fifteen (15) days of receiving allegations.

Defining oversight roles and responsibilities

Oversight roles and responsibilities are clear. A detailed list of grant-related processes and the individuals, or offices, responsible for reviewing the process have been clarified in the tables included in the "MSU PI Handbook, Part 3: Grant Processes."

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CHAPTER 17: KEY PI RESPONSIBILITIES

In the previous chapters of this Handbook, we have discussed the responsibilities of a PI. For convenience, we present all of those responsibilities as a checklist here.

- Prepare the proposal
  - Generate the idea
  - Identify the funding source
  - Assemble the internal research team
  - Select external consultants, vendors, and subaward recipient institutions
  - Write the background, methods, and other major sections of the proposal
  - Collect letters of support
  - Prepare biosketches
  - Prepare the budget, in collaboration with the ORA
- Work with the ORA to submit the proposal
  - Complete and submit the Internal Routing Form
  - Upload various sections of the proposal in the submission system
- Provide scientific leadership and training, such as
  - Supervise all staff for optimal scientific rigor in the conduct of the study
  - Train students, postdoctoral fellows, staff
- Provide administrative leadership and make decisions, such as
  - Hire staff and approve their timesheets
  - Order supplies and equipment
  - Reconcile the monthly P-card log, and approve invoices
  - Communicate the needs in a timely manner
  - Ensure fiscal integrity and allowability of the expenditures
- Provide leadership of the ethical conduct of research, such as
  - Obtain and maintain any required IRB or IACUC approvals
  - Maintain any required certification in the ethical conduct of research
- Supervise or conduct the required interim reporting, such as
  - Submit program performance reports
  - Ensure that the RFA submits the financial reports
  - Certify effort reports
- Advise and provide documents needed for any departures from the original plan, such as
  - Submit requests for carryover funds
  - Advise ORA if a no-cost extension is needed (at least 45 days prior)
- Close-out
  - Submit all required technical and financial reports
  - Ensure transfer or disposal of property purchased through the award
  - Follow all guidelines for patent and copyright procedures
  - Follow proper termination procedures for contractual personnel, if the personnel are hired solely for that project.