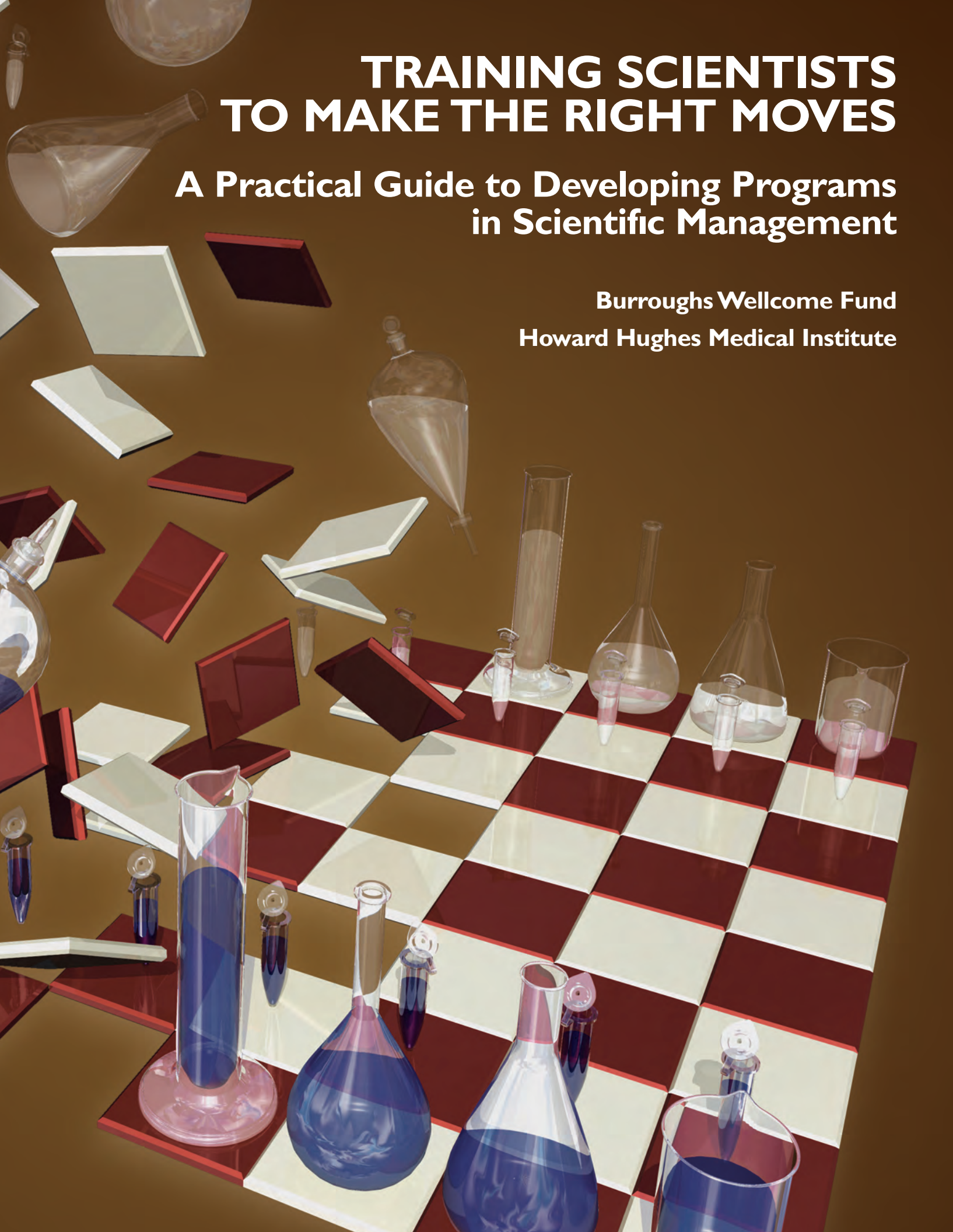
TRAINING SCIENTISTS TO MAKE THE RIGHT MOVES

A Practical Guide to Developing Programs in Scientific Management

Burroughs Wellcome Fund
Howard Hughes Medical Institute



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PREFACE

In July 2002, the Burroughs Wellcome Fund (BWF) and the Howard Hughes Medical Institute (HHMI), two leading philanthropies that support scientific research and education, held an intensive three-and-a-half-day course in scientific management for about 130 senior postdoctoral fellows and newly appointed faculty who had received research training or career development grants from these organizations. BWF and HHMI developed the course because they thought it was vitally important that these beginning scientists receive some formal training in preparing for their new roles as managers of independent research laboratories. Sessions dealt with an array of competencies—including job negotiation, grantsmanship, laboratory leadership, time management, data management, publishing, and mentoring—that could be broadly characterized as "scientific management" skills.

The course drew highly favorable feedback from the participants. To reach a wider audience, BWF and HHMI adapted the session content into a manual titled *Making the Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty* and made it freely available in both a hard-copy version and online at http://www.hhmi.org/labmanagement. Guided by evaluation findings, BWF and HHMI revised some elements of the original course and presented a retooled version in June 2005.

Both organizations recognized, however, that even their pooled resources could not meet the enormous need for this type of training. From this realization grew an idea to invest in a different approach—a program to train "trainers" and potentially multiply the impact. HHMI and BWF formed the Partners in Scientific Management Program by inviting representatives of academic institutions and professional societies interested in improving the training of early-career research scientists to apply to help plan the 2005 BWF-HHMI course and to attend and critique the course itself. In exchange, applicants pledged to stage training events in scientific management suitable for their own constituencies, ranging from workshops at professional society meetings to full-blown programs in a university setting. Representatives of the partner organizations (see page xiii, "Contributors") also participated in the development of this guide by sharing their experiences in organizing their training events, contributing materials, and reviewing manuscript drafts.

This guide, which distills the collective wisdom of the partners, BWF and HHMI course organizers, and others with extensive experience in scientific management training, is a companion to *Making the Right Moves*. *Making the Right Moves* is about concrete course content—what participants ultimately see and hear. This guide is about the discrete steps involved in course planning and follow-up—the behind-the-scenes activities that are invisible to participants but essential to a successful training event.

BWF and HHMI believe that training in scientific management should be available to all researchers early in their careers. *Making the Right Moves* and *Training Scientists to Make the Right Moves: A Practical Guide to Developing Programs in Scientific Management* were devised to help anyone who takes on the important task of providing such training to the next generation of biomedical researchers.

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This guide represents the contributions of many people. Maryrose Franko (HHMI) spearheaded the project from the outset, with strong support from Martin Ionescu-Pioggia (formerly BWF). Laura Bonetta, science writer and coordinator of the 2002 and 2005 BWF-HHMI courses in scientific management, and Patricia Davenport (HHMI) were instrumental in shaping the guide and managing the editorial process. Representatives of the partner organizations in the BWF-HHMI Partners in Scientific Management Program (see "Contributors," page xiii) provided the core content for the guide and reviewed the initial drafts. Session organizers of the 2005 BWF-HHMI course also contributed their experiences and reviewed sections of the guide: Anh-Chi Le and Barbara L. Ziff from HHMI, and Victoria McGovern, Rolly L. Simpson Jr., and Nancy S. Sung from BWF.

Emily Brownold (HHMI), Paul Corona (Northwestern University), Irene V. Hulede (American Society for Microbiology), Leslie K. Sprunger (Washington State University), Andrea L. Stith (HHMI), and Darlene F. Zellers (University of Pittsburgh) provided information for various chapters.

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Two people deserve particular recognition: Barbara J. Shapiro, who interviewed the partners and others to gather content for the guide and wrote the initial draft, and Krystyna R. Isaacs, evaluator of the 2002 and 2005 BWF-HHMI courses, who contributed to and reviewed the chapter on evaluation and the case study of the two BWF-HHMI courses.

HHMI's Dean Trackman managed the production process, Cay Butler and Kathleen Savory provided additional editorial support, and Adam Newton and Catherine Newton (Raw Sienna Digital) designed the guide.

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INTRODUCTION

Preparing postdoctoral fellows and new faculty to be successful managers of research programs is the collective responsibility of universities, professional societies, and funders of science. *Training Scientists to Make the Right Moves: A Practical Guide to Developing Programs in Scientific Management* was created by the Burroughs Wellcome Fund (BWF) and the Howard Hughes Medical Institute (HHMI) to help you and others interested in improving the training of research scientists.

This guide presents a menu of ideas for planning, delivering, and evaluating a multisession training program in scientific management. Of course, many training organizers will opt to hold less complicated events. For that reason, the guide is designed for selective reading. If you want a comprehensive primer, it can take you step by step through all the details. Alternatively, you can use the contents section to pick and choose what you need according to the scope of the training activity you envision and the planning support available to you at your organization. For example, if you are planning a small-scale workshop at your institution with local speakers and participants, you can skip the sections that discuss collaborative partnerships, travel arrangements, overnight accommodations, hotel contracts, and other matters that pertain to a more complex event.

In addition, depending on whether you work for a university or professional society, some sections will have more or less relevance. For example, professional societies often tie training events to existing meetings and their planning staff are more likely to have other staff or contractors to help with logistics, publicity, and budgets. Also note that, depending on your circumstances, some of the steps in the guide can occur simultaneously or in a slightly different order.

In the following pages, you will find a sampler of opinions, suggestions, lessons learned, and descriptions of how others at universities and scientific organizations have creatively used available resources to structure training events for early-career scientists. The chapters capture the experiences of faculty and staff representing the organizations that compose the BWF-HHMI Partners in Scientific Management. In this program, representatives from academic institutions and scientific professional societies helped plan and then attended and critiqued the 2005 BWF-HHMI Course in Scientific Management. The partners also agreed to hold training events in scientific management suitable for their own constituencies. In addition to input from the partners, the guide reflects the experiences of other program planners who are committed to helping beginning scientists become successful. Staff from BWF and HHMI who developed the joint course in scientific management also contributed their perspectives.

The first few chapters cover early-planning activities and decisions that are crucial for the ultimate success of a training program. "Getting Started: Deciding Whom to Train and What They Should Learn" includes sections on identifying your target audience, setting goals and objectives, and selecting topics. "Obtaining Support and Assembling a Planning Team" offers advice on making the case for training to your organization's leadership, finding people to help you organize your program, and working with them in a collegial and productive fashion. "Deciding What, When, and Where" reviews factors to consider in selecting a date and location for the training. "Developing a Budget and Getting the Funds Together" offers guidance on determining costs and securing additional funding.

Building on decisions made in the starting phase, the next few chapters narrow the focus from the big picture to its components. "Fine-Tuning the Agenda" delves into the details of deciding what content to cover, as well as the sessions' format and length. "Finding and Working with Speakers" offers advice on securing knowledgeable and engaging speakers and working with them to deliver the information that your trainees need. "Recruiting and Registering Participants" contains strategies for publicizing a training event and handling the registration process.

As the day of the event approaches, "Making It Happen" will walk you through the nitty-gritty of meeting logistics (e.g., travel and accommodations, food, room setup and audiovisual equipment, and handouts). "Evaluating the Training" makes the case for follow-up assessment: A thoughtful evaluation can tell you how well you met the goals you set for the training and pinpoint how future activities might be improved. Tips on developing evaluation tools and working with professional evaluators are included.

The appendixes contain a case study of the two BWF-HHMI courses in scientific management, which shows how the lessons learned from the 2002 course shaped the course held in 2005. Included are abstracts of the 2005 course sessions and a summary of the postcourse evaluations.

In addition to the printed guide, a resources section is available online at *http://www.hhmi.org/labmanagement*. Here, you will find a detailed version of the BWF-HHMI courses case study, as well as a variety of materials from the 2005 BWF-HHMI course and training events developed by others, such as letters, forms, checklists, and case-study examples. They are offered as samples that you can adapt to your needs and time-savers to free up more of your attention for the specifics of your own training activities.

Note that nothing in this guide is presented as a required protocol or a way to guarantee success. Some options will be feasible for you and your organization; others will not be. A range of ideas and resources is provided as a starting point to help you form your own judgments and develop your own materials—a template for designing a training event that will help beginning scientists launch their careers better equipped to meet the leadership challenges ahead.

Chapter 1

GETTING STARTED
Deciding Whom to Train and What They Should Learn

In This Chapter

Almost daily you hear pleas for more help with a range of issues for early-career scientists, from time management and mentoring to grantsmanship and tenure. You realize the time has come to develop or expand current efforts in scientific management training. How do you begin? Whether you are thinking about putting together a single workshop or a full-fledged course, you first need to understand the training needs at your university or professional society. Ask yourself the following:

- Who are the people I want to reach?
- What are my goals? How will I know if the training has been successful?
- What topics should be covered? What will make this an attractive offering to the group of participants I want to reach? What content is essential versus optional (or already provided in another venue)?

IDENTIFYING YOUR TARGET AUDIENCE

In designing scientific management training activities, audience and topic can be a chicken-and-egg question. It makes sense to decide whom the training is for before you choose what topics to cover, but there can be some logic in reversing the order. For example, if you have identified holes in what scientists are taught, you will need to ascertain who will benefit most from fill-the-gap sessions.

Some topics identify their own audience. For example, interviewing for a first faculty job is a subject of distant interest to graduate students and early-stage postdocs but is relevant to senior postdocs. Junior faculty would be interested in lab staffing issues or the tenure process.

When Your Target Audience Is Mixed

Your audience may not necessarily be made up of just one group of people, say, all basic research scientists or all physician-scientists. For example, if roughly half the content you want to cover is germane to both basic scientists and physician-scientists and half is of interest to only one group, you may find that a parts-and-whole agenda can work well. You could design half the sessions for everyone to attend and the remaining half as simultaneous workshops tailored to each group. Segmenting the audience in this

way can help ensure that attendees will find the training relevant and worth their time. However, if this is a first-time offering, you may want to find a way to make it available to all your constituents, regardless of their status. If it evolves into a yearly event, it can be offered to a more limited audience each time on a revolving basis.

Mixing Career Levels of Participants

"You have to weigh the value of having a diverse group in terms of career level against the value of targeting the content to a specific group. The evaluation of the 2002 BWF-HHMI Course in Scientific Management showed that there is definitely a benefit in terms of the informal mentoring that can occur when the group is diverse. The course participants who were a bit farther along in their research careers were able to talk about their experiences with the junior-level people, answer their questions, and offer advice."

—Maryrose Franko, HHMI

SETTING GOALS AND OBJECTIVES

Take some time to think through the goals for the training session. What do you want participants to know and be able to do when they complete the training and in the months and years that follow? This exercise will help you

- Shape the goals for the training program as a whole.
- Determine the topics to be covered, and develop the learning objectives for a particular session.
- Identify speakers.
- Develop an evaluation instrument to determine the success of the training.
- Market the training by telling prospective participants what knowledge and skills they can expect to gain.

Reaching a Shared Vision for the Training

"It may be helpful for the planning team to discuss what they envision as a successful program in scientific management training. A starter for such a discussion might be the following phrase: 'I will consider the training a success when….' This type of brainstorming can generate a lot of creative ideas for the training, as well as bring the team closer to a consensus on what the goals of the training should be."

—Joan Lakoski, University of Pittsburgh School of Medicine

Q/A

What is the difference between goals and objectives, and what are some examples in the context of scientific management training?

Goals are broad statements about what you want to accomplish in the training; they frequently are not measurable. Objectives are specific things you want participants to learn; these are measurable. Examples include:

Session on mentoring

Goal: To understand how to be a good mentor and how to be mentored well

Objectives:

- ❖ Be able to describe strategies for giving productive feedback
- ❖ Be able to identify strategies for mentoring people from different cultural backgrounds
- ❖ Be able to describe strategies for asking for help and feedback
- ❖ Be able to find mentors outside one's training stream
- ❖ Be able to get the most out of mentors assigned by your institution

Session on navigating the university structure

Goal: To gain knowledge about the organization of a typical university

Objectives:

- ❖ Be able to describe the administrative structure of a university and the roles and responsibilities of the executive officials
- ❖ Be able to identify university staff who can help a beginning investigator advance his or her career
- ❖ Be able to describe the resources available to a beginning investigator
- ❖ Be able to describe the responsibilities of faculty outside the laboratory

SELECTING THE TOPICS

You probably have more than an inkling of the gaps in the training for beginning scientists that currently is provided by your society or university. You probably also have a good idea of what certain groups want from training because they've been telling you informally. Even so, you will likely want to gather data in a more systematic way to confirm your initial impression and to help you gain support for the training from your organization's leadership. Here are some ideas for how to go about this.

Conduct a Survey

One option for determining what topics to cover is to hold a focus group with your target audience, but that can be expensive and time-consuming to organize and conduct. Experienced planners note that a survey can provide much the same information. You may want to survey the needs and interests of only your target trainee group or poll a broader sample. For example, you may want to survey scientists who are at a slightly more advanced career stage than your target group and ask them what information would have helped them prepare better for their careers. One planner at a university surveys not only members of her target audience but their department chairs, division chiefs, and sometimes a few deans as well. Keep in mind that your target trainees may not necessarily be aware of what they should know. In some cases, you might have better insights into their needs from your own knowledge and survey findings or from other organizations' survey findings.

See page 88 in chapter 9, "Evaluating the Training," for the names of some Web-based survey tools.

Tip

Short and simple surveys can suffice—for example, a one-page questionnaire that asks respondents to rank a list of topics or to write their own top choices in order of priority.

Consider Feedback from Previous Training Events

If you have already carried out a training program, you can decide which topics to include in the new program based on the trainees' responses to previous offerings. For example, responses from participants in the 2002 BWF-HHMI Course in Scientific Management guided the revision of topics and formats for the 2005 course. See appendix 2, "The BWF-HHMI Courses in Scientific Management: A Case Study," for findings from the course evaluations, some of which may be relevant to the training you are planning.

What Postdocs and Junior Faculty Need to Know

"There are many areas in which junior faculty need additional training. It's important to have sessions on mentoring in a training program, whether it's done formally or informally. Junior faculty are begging for this. Also, we could all learn more about how to hire good people; most of us never had training in this area. Another area I believe new faculty need to know about is budgets—something else they haven't learned. Many people are resistant to personality profiling, like Myers-Briggs [personality indicator], but it's incredibly valuable.

"With the career clock ticking, organizational issues become relevant: Who's in charge of promotion and tenure, and what are the timelines? Simply knowing about the institution's resources is important. Are there internal grant-funding opportunities? What core equipment and resources are available? Who are the key institutional people, for example, heads of sponsored programs, who will help you with your grants? Young faculty may not know anyone other than their department chair. This is all about orienting our young scientists to their environments."

—Sandra Degen, University of Cincinnati and Cincinnati Children's Research Foundation

Gathering Ideas for Session Topics

"When we surveyed our members, we gave them 11 topics selected from the BWF-HHMI book, Making the Right Moves*, plus clinical practice management and basics. The top three topics—time management, job planning, and grantsmanship—were ranked about equally by the members, so we gave each one equal time of half a day."*

—Siobhan Corbett, Association for Academic Surgery

"I have conversations with faculty often about needs they see every day (e.g., acculturation issues, writing skills). I also ask postdocs informally, as well as through formal focus groups and electronic evaluations of other programs, to determine what skills they would like help enhancing."

—Melanie Sinche, University of North Carolina–Chapel Hill

Take a Look at What Other Organizations Are Doing

Visit the Web sites of professional societies and academic institutions to find out what topics they are covering in their training programs and what materials they have that could help you with topic selection. For example, the American Physiological Society (APS) and the Association of Chairs of Departments of Physiology (ACDP) have jointly published the APS/ACDP List of Professional Skills for Physiologists and Trainees (*http://www.the-aps.org/education/skills.htm*). Some program planners opt to model their offerings on the BWF-HHMI Course in Scientific Management (see appendix 3 for the 2005 course schedule).

Tip

A variety of resources for organizing a training program are available at *http://www.hhmi.org/labmanagement*. They are drawn from materials used for the 2005 BWF-HHMI Course in Scientific Management and those contributed by the Partners in Scientific Management and others involved in career development programs for early-career scientists. The resources include sample topic surveys, planning timelines, letters to trainees and speakers, registration forms, logistics checklists, brochures, session evaluation forms, and case study examples of challenges faced by early-career scientists. These materials may be used, distributed, and modified for noncommercial, educational purposes.

Q&A

What do I need to watch out for if I want to use someone else's materials?

If you want to use or adapt someone else's training materials, you will need to be clear about what is required from the copyright owner in terms of acknowledgments and permission and the conditions for use. Contact the person or organization to obtain this information. Ask them if parts of the materials belong to someone else; if so, you will have to contact that other person or organization as well.

If you want to use BWF-HHMI's *Making the Right Moves* in your training, you may do so provided that the copyright and any other notices found on the title page of the book appear in all reproductions, that use is for noncommercial educational purposes only, and that the material is not modified in any way.

Build on Your Organization's Existing Training Activities

Most academic institutions and professional societies already offer some career development activities. For a coherent and comprehensive approach to scientific management training, consider how to dovetail new topics with what already exists. One professional society's committees review the topics they have covered in previous years. With that information in mind, they do some brainstorming to come up with new topics or popular topics that could be approached from a new perspective. They also take a look at which groups have not been served recently and sometimes develop a session specifically for them.

How Much to Cover?

You will probably have the choice of covering many topics somewhat superficially or a few in more depth. Budget factors can tempt planners to include as many different topics as possible to make the most of funds earmarked for the training. Convenience—having to organize an event only once—can also prompt organizers to offer many, rather than a few, topics. You will also have the choice of making topics relevant to a specific group (e.g., senior postdocs) or more broadly applicable along the training continuum. The latter approach works well in some cases, but you risk producing a program that is of marginal value to anyone (see page 3, "When Your Target Audience Is Mixed").

Take Care with the Title

The title of your training activity should be clear. As one program planner cautions, this is not the place to be creative. You want the title to be adequately and accurately descriptive so that it presents a compelling reason for your target audience to come to the training—and for funders to pay for it. You also want the title to make clear who your audience is. For example, if you offer a session for principal investigators titled "Laboratory Management Workshop," you may attract the wrong audience, for example, a laboratory technician who has the title of "lab manager" instead of principal investigator. Brevity isn't necessary—it is okay to use a two-part title with explicit information after the colon to leave no room for doubt on what your activity is about. Remember also that a "touchy-feely" title may be a turn-off to some audiences. You may want to test a few alternatives on members of your target audience before you finalize any marketing materials. (For more information about publicizing your activity, see chapter 7, "Recruiting and Registering Participants.")

Chapter 2

OBTAINING SUPPORT AND ASSEMBLING A PLANNING TEAM

In This Chapter

TAKING STOCK

After you have identified the people you want to reach and their training needs, the next step is to paint in broad strokes the kind of program you want to offer. Take a look around you and see what is readily available in terms of people and resources to support your effort. One approach to this task is to conduct an informal inventory of resources that are available on campus if you are at a university or at your annual meeting if you are with a professional society. Consider the following:

- Scientists and administrators who could advocate for the program and serve on the planning team
- University or professional society divisions that would support the initiative
- Physical space—location, size, technology features, catering facilities, cost
- Expertise and communication skills of possible speakers
- Evaluation expertise
- Funding avenues
- Potential collaborators

List the resources you find. From there, expand the list by checking your organization's Web site, making some phone calls, meeting with colleagues in person, and using e-mail as both a bridge to and a follow-up of calls and meetings.

IT'S OKAY TO START SMALL

Now, step back and reevaluate the feasibility of your idea. You may find that you will have to narrow your focus a bit. Developing a training program in scientific management can be an ambitious undertaking. In many cases, it may be better to start small—for example, a single-session event at a university or a part-day workshop at a professional society meeting—and learn from the process. Planners who have been through the learning curve recommend beginning with a "manageable mouthful." Once you have mastered the basics, you can expand your offerings. In addition to simplifying your task, starting small may make it easier to obtain support from your organization's leadership.

Jump in and Begin Planning Your Event

"Don't make it so complicated; just jump in and do it. The first one may not be perfect, but you learn from doing it. A multisession symposium is immensely more complicated than a single-topic or less ambitious event. For your first session, start with something modest."

—Philip Clifford, Medical College of Wisconsin

"If your [training event] requires too many resources, there will be all kinds of barriers and questions. I always tell the society it's a pilot study, not a lifetime investment, and we'll reevaluate it in three years. Get your pilot data, then go for something bigger."

—Amy Chang, American Society for Microbiology

Q&A

My department chair has given me the task of organizing a small lab management workshop for postdocs at my university. I have a general idea of what the topics will be and what the session should accomplish. But all the rest of the details involved in planning the workshop are daunting. What sections of this guide should I read?

You may want to focus on the following sections and chapters:

- Chapter 2: "People Who Can Help," page 16
- Chapter 3: "Determining the Date," page 22; "Developing a Timeline," page 24; "Choosing the Location," page 25
- Chapter 4: "Thinking Through Some Budget Details," page 31; "Avoiding Conflicts of Interest," page 35; "Tips for Cutting Costs," page 36
- Chapter 5: "Fine-Tuning the Agenda," page 39
- Chapter 6: "Finding and Working with Speakers," page 47
- Chapter 7: "Recruiting and Registering Participants," page 55
- Chapter 8: "Strategies for Keeping on Track," page 64; "Meeting Space," page 66; "Training Materials and Giveaways," page 70; "Troubleshooting: Develop a Contingency Plan," page 72; "The Run-Up to the Event," page 73; "The Day of the Event," page 75
- Chapter 9: "Evaluating the Training," page 79

Remember, this guide is a collection of ideas and advice from organizers of training events—large and small. Go into whatever depth you need on the topics that apply to your situation. In addition, you may want to take a look at the sample letters, registration forms, logistics checklists, and other training resources available at *http://www.hhmi.org/labmanagement*.

OBTAINING BUY-IN FROM YOUR ORGANIZATION

The next step is to take your concept for conducting scientific management training to the leaders who control the resources in your organization and obtain their buy-in.

Securing Support from the Top

People involved in career development at academic institutions and professional societies offer the following advice:

Find an advocate. Look for a senior-level person who can smooth the way. In academia, this might be a vice president for research, dean, provost, or possibly a chancellor. If you are in a professional society, this might be the chair of a relevant committee or one of its members (usually the education, careers, women's, and minority committees are good places to start). This advocate can be particularly helpful in convincing others in the organization's leadership to allow beginning scientists to take time off from their regular duties to attend the training (see page 56, "The Challenge of Obtaining Release Time").

Building Support

"In a professional society, consider taking an incremental approach to building support. Start with the committee that seems most obvious, but if you don't get traction with that group, then move on. Perhaps that is the time to contact the elected leadership of the organization—ask them whom to go to, given that the 'X' committee has more than enough other things on its plate already."

—Crispin Taylor, American Society of Plant Biologists

"Enthusiasm is contagious. Find your constituency groups (e.g., postdocs, new faculty) that would benefit from this opportunity to develop their leadership and management skills. Find a champion within the leadership of your organization who can effectively pave the way for you to plan a top-quality program."

—Joan Lakoski, University of Pittsburgh School of Medicine

Build broad support. Cast a wide net across your university's colleges or schools and departments, or your society's members and committees to find a group of people—department heads, student services personnel, research officers, committee chairs, and other decision makers—who recognize the worth of scientific management training and are interested in offering it to their constituents. To know who can best help you, it is a good idea to familiarize yourself with the organizational structure of your university or society.

Another group of supporters can be the individuals who will directly benefit from the opportunity to participate in your training program. For example, consider enlisting the support of the executive board of your local postdoctoral association and faculty support groups (e.g., women in science and medicine groups, minority faculty mentoring groups). These leaders, in turn, can generate interest and support among their memberships.

Make the case. Presenting your ideas with enthusiasm and the details that show you have thought the process through can be powerfully persuasive. It is important to make a clear connection between your request and your organization's mission. Enlightened self-interest is another powerful argument. After all, your university or society is sure to benefit from being a leader in this area. If there are programs similar to the one you want to do, in your organization or elsewhere, use them as examples to establish credibility with your leadership. If you plan to collaborate with an organization, this can also be a strong argument for gaining support from your leadership, provided your collaborator shares your organization's mission and goals.

Two recent reports should bolster your case: Recommendation 4.6 of the National Academy of Sciences' *Bridges to Independence: Fostering the Independence of New Investigators in Biomedical Research* proposes that universities, academic departments, and research institutions broaden educational and training opportunities for postdoctoral researchers to include such subjects as project management, grant writing, and mentoring (see *http://books.nap.edu/catalog/11249.html*). Sigma Xi's report *Doctors Without Orders* documents that structured training is predictive of postdoctoral success (see *http://postdoc.sigmaxi.org*).

Rationale for Scientific Management Training

"The postdoctoral fellow or newly appointed faculty member typically has little training in the business aspects of establishing a laboratory and building a research program. This lack of training and experience can be costly. Costs may be measured in terms of professional, university, and scientific advancement; inefficiencies; or litigation on issues related to regulatory noncompliance, research integrity, and grant management…. Lost productivity, low morale, absenteeism, personnel turnover, personnel grievances, errors, and rework are other costs when laboratory personnel are managed by those who may have excellent training in their disciplines and scientific methodology, but who lack management training."

—John Galland, University of California–Davis

If You Need to Prepare a Formal Proposal

After you present your case, your organization's leadership may give prompt approval for you to charge full steam ahead with planning activities. It is more likely, however, that you will be asked to submit a formal proposal detailing the kind of training program you envision and estimated costs. For assistance with this important step, consult the following chapters of this guide:

- Chapter 1, "Getting Started: Deciding Whom to Train and What They Should Learn," page 3
- Chapter 3, "Deciding What, When, and Where," page 21
- Chapter 4, "Developing a Budget and Getting the Funds Together," page 31

The following presents some suggestions for what to include in your proposal. At this early stage in the planning process, you will probably not have ironed out all the specifics, but include as much detail as you can. Later on, when you are able to fill in the missing pieces, you can use the document as a planning tool and, if you need to seek funding from outside your organization, as a template for your proposal.

Abstract/project summary. This should include:

- A brief statement about the date, location, name of event, organizer, and the organizer's goals. For example:

This proposal requests partial funding for the workshop "Career Development Workshop for Academic Scientists" to be held at the Science Meeting A in City B on Date C. This workshop/workshop series is part of Organization X's goals to …."

- A statement about the issue that motivates the organization of the training event
- A description of how the event responds to the described need
- A description of the goals for the training
- A brief description of how the event will be implemented (e.g., Is it a collaboration? If so, with whom? Are there any additional sources of funding?)
- A brief description of evaluation plans and how evaluation outcomes will be used (e.g., Are there any broader impacts?)

Main proposal. This section should provide a comprehensive description of the event, detailing the who, why, what, when, how, and how much. Each part should clearly delineate a critical element of (or concept behind) the event and explain how it fits into the proposal as a whole. The proposal should cover the following categories of information:

- *Introduction—rationale, goals, and description.* In this section give a brief overview of the proposed activity, including your goals for the training and what you want participants to get out of it.
- *Training event participants.* Describe the intended audience: Why do you think they will be interested and why did you focus on this group? Is the event appropriate for any other groups? How will you ensure that participants show up? (You may want to include your ideas for advertising this event.)
- *Organizers and their affiliations.* Make it clear who is participating and in what capacity, and why they are appropriate for this project.
- *Event organization.* Explain how the event will be organized: Where might it be held? Why are the suggested timing and length appropriate? What formats (e.g., lecture only, interactive exercise, panel) might be included? Who are some potential speakers and why are they the right ones? How does this training activity fit in with other events at your organization? Will there be refreshments? Will there be time for social interactions, and if so, why is this time necessary?
- *Program follow-up.* Will you follow up with attendees in any way? Will there be an evaluation? If so, what information are you looking for and why are you looking for it? What is next on the horizon?

- *Key personnel.* Key personnel are the organizers, sponsors, speakers, and support staff. If you know them at this early stage, list the people who will be involved and why they are appropriate for the tasks. Clearly describe, one by one, what these people will be doing and why they are right for the job and explain that they are already committed to the project. (As supplemental information in appendixes, you can attach resumes that present credentials in traditional CV style.) You may also want to point out preparatory work that they have already done.

- *Budget and budget justification.* Lay out the categories of the budget. In the budget justification, you may want to

  - Discuss (on a line-item basis) why all budgeted amounts are appropriate and necessary for the training.

  - Explain why you are or are not asking for supporting funds for specific elements (e.g., Will participants be paying to attend, and if so, how much and why? Will some of the costs be covered by other funding sources or through in-kind support?).

- *Appendixes.* These should include any materials (e.g., training content, advertising, Web resources) that you have already developed, as well as any print and Web materials (e.g., journal articles, reports) that support your case for the training. Include CVs for any key personnel you have on board at this early stage.

ASSEMBLING A PLANNING TEAM

Once you receive the green light from the top, you will be ready to start the real work of organizing your training activity. The first thing you will have to do is put together a planning team. Remember, you don't have to go it alone. Most people are willing and even happy to help with something that they recognize will benefit their work, their university or society, and the constituencies they serve. In addition to helping you organize the training, planning team members can also serve as "boosters" to gather and maintain support from the leadership and others at your organization.

How to Begin?

First, seek out people at your own organization or with whom you have connections to help. Depending on the complexity of your event, you also may want to partner with individuals from another organization, in which case the planning team will have members from both sites (see page 17, "Collaborating with Another Organization").

The Power of Networking

"After almost seven years at my institution, I had made a lot of contacts. I called all of them. When they gave me other colleagues' names, I called all of them as well. The best contact was a faculty member who agreed to be one of the program champions and connected me with another faculty member, who was putting together an NSF ADVANCE proposal on professional development and was willing to include my program in the larger initiative. I know it's a cliché, but it's all about networking!"

—Holly Falk-Krzesinski, Northwestern University

Consider tackling the task of putting together a planning team in a systematic way by conducting an informal survey of potential members at your own institution or your collaborating partner's (if you have one), asking people if they might be interested in helping out (see page 16, "People Who Can Help"). You may end up with a lengthy list. It is neither necessary nor desirable to bring everyone to the planning table, but you can keep different people on call for advice or for assistance with specific tasks.

Tip

Politically, it is a good idea to find some way to involve everyone who offers a helping hand. Just be clear about what you want from them in terms of responsibility, time commitment, and deadlines. (Be sure to acknowledge their contributions and say thank you.)

Something else to keep in mind as you recruit members for your planning team: Developing a scientific management program hones leadership and management skills, and this type of activity can give the organizers considerable visibility and experience. This might be a factor in decisions about whom you approach for assistance in program planning. You may want to turn your attention to junior colleagues identified (by themselves or others) as being ready to take on more leadership responsibilities or to postdocs who want to enhance their CVs with activities outside the lab.

Postdocs and Graduate Students as Advisers

"For my lunchtime seminars, I have a four-person committee that recommends topics. The committee has two volunteers from the Postdoctoral Advisory Committee and two from the Graduate Student Association. I provide guidance on how to flesh out their ideas and find speakers, and when I suggest sessions, the committee vets the subjects and speakers."

—Philip Clifford, Medical College of Wisconsin

"Postdocs are often an untapped resource. Many are looking for opportunities to get involved and would love to help organize a lab management event. At UCSF our first lab management course team was made up of the director of the Career Center, two human resource managers from two partnering institutions (the Gladstone Institute and the Buck Institute), the director of postdoctoral education (me), and a postdoctoral fellow. We were able to offer a small stipend to the postdoc. One could consider a short application to recruit postdocs to help in the course."

—Samara Reck-Peterson, University of California–San Francisco

People Who Can Help

Here are some ideas of where to look for planning team members:

- Department chairs, minority affairs deans, faculty affairs deans, and vice presidents for research could help generate support and visibility for your training program and perhaps serve as speakers.
- An evaluation expert could help make sure that useful prospective data are gathered, identify measurable objectives for the training, and help with the posttraining evaluation.
- Staff people who have worked with you on other projects or who are already serving or who have served on your organization's committees might be interested in giving you a hand with the planning process and logistics. If a staff person is not available to help on the project, consultants who have previously worked for your organization might be able to help.
- Postdocs and graduate students might be eager to help organize a session.
- Colleagues who have nuts-and-bolts knowledge of scientific management issues could help organize and possibly participate in sessions. For example, staff from the office of research administration or directors of NIH and NSF training grants could organize a session on grantsmanship. A member of an Institutional Review Board could help with a session on ethics. Faculty acknowledged to be experienced mentors (some institutions have "master mentors" or mentoring programs) could help with a session on mentoring. Human resources staff could help develop sessions on negotiation skills, leadership, and personnel issues. Staff from business and engineering schools could help plan sessions on project or time management or help you with the training evaluation. Career services staff could assist with a host of career development topics.

Still other people can offer valuable advice and materials:

- Library staff for tips on e-resources for funding and publishing
- Staff (and committee members) of professional societies who may have a variety of professional training materials and know-how
- Participants and speakers from other laboratory management and leadership training activities, such as the BWF-HHMI courses in scientific management or activities developed by the BWF-HHMI Partners in Scientific Management Program (see page xiii, "Contributors," for a list of the partner organizations and their representatives)

Tip Try to assemble a planning team with diverse expertise and a range of institutional roles and perspectives. If possible, include both senior- and junior-level researchers.

Types of Planning Teams

Ideally, you will be able to form a core group of four to six people to help you plan the training and additional people who are willing to be speakers or organize specific sessions. You want to have enough heads and hands to spread the load reasonably but not so many that you jeopardize easy communication and decision making during the planning process. A small group may not be feasible, though, if you want to make sure all the necessary voices are heard. But even if you start with a large group, overcrowded calendars and waning interest may result in attrition, leaving a smaller, more manageable, and committed core group to take charge.

In addition to or in lieu of a core planning team, some organizers recruit a group—faculty or others—to review and refine the planning team's program or to contribute more directly to specific details of the training. This group can be much larger than the core planning group to allow for greater input and involvement.

A Multilayered Planning Team

"Start with a core planning group of no more than five, including a chair, and others who are committed to launching this type of program. This small executive planning group has to be agile. It can set the timeline—the strategic planning needed to get the event ready—then decide who else to bring in for a second group, as an advisory committee. An advisory committee is a wonderful way to get buy-in from others. It's also a good idea to identify a point person for the program, such as a director to coordinate responses to all questions."

—Joan Lakoski, University of Pittsburgh School of Medicine

Senior-Level Advisers Lend Credibility

"At UCSF we assembled a team of senior administrators and faculty who were well known for running well-managed research labs to serve as our advisory panel. We included the names of our advisory panel on most advertisements for the course. I think this gave a lot of credibility to the course early on."

—Samara Reck-Peterson, University of California–San Francisco

Working with the Planning Team

Once you have put together a planning team, you will have to clarify people's roles and responsibilities, determine who has final decision-making authority, and decide how you will communicate with each other about expectations, the planning schedule, and deadlines. You will need to apply all your project management skills to keep the team on track. Lots of lists, a detailed timeline, and calendars with reminders will help.

COLLABORATING WITH ANOTHER ORGANIZATION

Partners help ease the load in terms of both labor and funds. They can also bring complementary resources, insights, and talents to the table that will enrich the presentations, allow for cross-disciplinary interactions, and give trainees amplified opportunities to listen, practice, and learn. On the downside, collaborations can raise issues of turf and primacy. Nevertheless, experienced planners agree that, on balance, the potential benefits of collaborations outweigh the possible drawbacks.

Tip

If you are at a small professional society, joining forces with another society can be a great way to increase the number of participants and networking opportunities, without having to duplicate the infrastructure needed to provide the training. Similarly, if two universities are located close to one another, a collaboration can turn a potential competition into something that will benefit trainees at both institutions.

Sensible Ground Rules for Productive Collaborations

Regardless of whether you collaborate with a single organization or form a consortium with several, keep the following points in mind:

- **Choose your collaborators carefully.** Make sure you have similar goals and aspirations for the project. When approaching an institution that already has a well-established program, be aware that it might not want to be a formal partner, but it might be willing to help you in an advisory capacity. You also want to make sure that your collaborator has buy-in from his or her organization's leadership.

Tip

You may want to begin small and test the effectiveness of a collaboration on a small event, then progress to a larger one.

- **Get them involved early on.** Try to identify and involve your collaborators as early as possible in the planning process, so that they don't feel left out of the initial decisions. Ideally, they should work with you on the initial proposal.

- **Define roles early and clearly.** Outline each collaborator's role and respect those boundaries. It's important that collaborating partners agree about expectations and know about deadlines well ahead of time.

- **Be open to what your collaborators have to offer.** If collaborators don't have comparable financial resources, they might be able to share costs in kind (e.g., one provides facilities and another covers catering).

- **Put everything that is important in writing.** Tacit expectations can trip you up at any stage. After each discussion, summarize in writing what you agreed on and distribute the document to all parties involved with the planning and financial support of the project.

- **Be willing to compromise.** Once you accept that you cannot control all decisions, it is easier to know when to concede gracefully and when to stand firm. Keep in mind that different organizations often have different administrative policies and programmatic priorities. Be frank with your collaborators about the matters on which you can compromise and those you cannot.

- **Don't be too controlling.** Include your collaborators on all correspondence. Seek their advice and try to incorporate their suggestions.

- **Keep careful financial records.** This is essential when collaborators share expenses, particularly when they don't have equal access to financial resources.

Tip

If your program involves several collaborators, you may want to consider using an impartial arbiter. Try to find someone who is knowledgeable about lab management issues, but does not have a vested interest in your institution or that of your collaborator, to make final decisions. For this approach to work, everyone must agree to abide by the arbiter's choices.

Q&A

What if my collaborator and I disagree on who should participate in the training?

Revisiting your own goals may help resolve the conflict. For example, if you envisioned the course to be only for faculty but your collaborator would like to include some training for senior postdocs, you may want to rethink your original goals and agree to broaden the scope of the training. If this is not an option, you might consider a couple of give-and-take solutions: Hold alternating sessions for different audiences, or hold concurrent sessions tailored to the needs of different audiences.

COMMUNICATION WITHIN THE PLANNING TEAM

Regardless of whether it consists of people from your own organization or includes collaborators from another, the planning team must communicate regularly and often—via e-mail, phone, or in person. You and your team members may do well trying one medium and schedule for bringing the group together and then making adjustments as needed. For example, you might begin with monthly conference calls and end up having most discussions take place via e-mail. No matter how you choose to communicate, below are some strategies for getting off to a good start and for keeping in touch and on task.

Begin by Meeting Face-to-Face

It is desirable to begin your planning partnership with a face-to-face meeting, because that's when roles should be discussed and assigned. This is especially true when you are collaborating with partners from other organizations. "Face time" provides the best setting for group dynamics to come into play, and insights gained from facial expression and body language at an initial planning meeting can prove valuable later on.

If you cannot have your first meeting in person, the next-best way is by phone; even with instant messaging, e-mail doesn't allow optimal real-time discussion. The first meeting is the time to agree on the operating procedures that will govern your group interactions. Those include how decisions will be made, how you'll communicate, and how often. Subsequent meetings can be handled via conference calls, videoconferencing, or e-mail.

Make the Most of Conference Calls and Meetings

The tips below can help you make efficient use of everyone's time:

- **Stay on schedule.** Use an agenda that has times allotted for each topic to help keep conference calls or meetings on track, and circulate the agenda in advance.
- **Keep notes of what you discuss and decide**. Don't assume that everyone heard the same thing. Designate someone to take notes. This can be a rotating task. Keep the notes tight—a condensed form of minutes—with bulleted action items: who will do what and by when.
- **Follow-up.** Circulate the meeting notes immediately after a meeting and then again before the next one, so that you can start fresh, without rehashing old business.

BUILDING IN EVALUATION

You will want to include evaluation of the training event in your discussions with the planning team. Why? Because framing the evaluation questions early on will help you identify the goals that constitute "success" and drive your planning.

In addition to telling you how well the training event achieves its goals, evaluation data can help you plan future training events by letting you know if you need to adjust content, types of speakers, or the apportioned time. Further, evaluation data that demonstrate success will support your efforts to solicit grants from outside sources and maintain (or increase) funding from your own organization.

Another reason to think about evaluation early on is that some desired information may require action beforehand, such as a pretraining survey to establish a baseline for changes in attitude or knowledge. If you have not gathered such data in advance (e.g., on an application or registration form), the opportunity is lost for good, and with it, information you might have found instructive.

For more on this subject, see chapter 9, "Evaluating the Training."

Chapter 3

DECIDING WHAT, WHEN, AND WHERE

In This Chapter

Now that you have obtained buy-in from your organization's leadership, assembled your planning team, and given some preliminary thought to evaluation, the next steps are to decide what kind of training program you want to have and when and where it will take place. You will also want to develop a timeline to help you manage the planning process. This chapter provides ideas and suggestions for different scenarios; just pick and choose what applies to your unique situation.

SETTLING ON A STRUCTURE: BIG-PICTURE CONSIDERATIONS

Answers to a few fundamental questions can help guide your decisions about the format, frequency, location, and length of your training activity, as well as scheduling issues that could affect participants' ability to attend.

Format, Frequency, and Location

Consider the following:

- What can you address adequately in a single workshop? What works better when integrated into a larger program?
- Will the training be delivered as a concentrated event over several consecutive days? Or would you prefer to stage a series of discrete events over several weeks or months?
- Is participants' anonymity important for training in any of the topics (e.g., mentoring, laboratory leadership)?
- Will the training be delivered in the context of a retreat experience? If so, at your institution or away? In some combination of retreat and on-site workshop?
- Can the training be run before or after an annual meeting to reduce travel costs for participants and speakers?
- How can you make your event more inclusive to increase its impact without increasing your budget? For example, do you want to open your event to participants from nearby institutions?

Scheduling and Length

Other issues to think about:

- When should the training be held? How long should it be?
- How much time away from the lab or home can your target participants take?
- If the sessions are spread over several months, will participants lose interest or attend only the sessions they think are important?
- Does your schedule need to factor in travel time for participants and speakers to get to and from your program site (e.g., a location on the East or West Coast or far from an airport)?

Q&A

How can I organize my program's offerings to engage people's interest and make it easier for them to attend?

Experienced program planners give the following suggestions:

- Organize your topics to provide a package in one specific area. For example, consider running a program on job hunting as a triad of self-assessment, career exploration, and job search strategies.
- Pull your training events into a series and promote them together—at the first event or in your promotional materials.
- If you have a topic that requires several hours of training, think about holding one or two lunchtime sessions over a period of several weeks. It is usually easier for people to get time off in small segments. (For a discussion of helping participants obtain release time, see page 56.)

DETERMINING THE DATE

Early on in the planning process you will need to decide when to conduct your program: during the week or on a weekend, during the day or in the evening, in the winter or summer, and so on. The availability of space to hold the training and the schedules of speakers and trainees are also factors to consider while weighing your options.

Day, Time, and Season

Weekend versus weekday. A weekend-spanning event makes it possible for participants and speakers to be at work for most of the week, which might make them more inclined to attend. For many people though, weekends are catch-up time. Many people want to be home with their families. In addition, if you have administrative assistants and audiovisual staff helping you, you could be obligated to pay overtime.

Weekday Training

"Our faculty camps are on weekdays to emphasize that they should be considered part of work, and also so as not to impinge on weekends. The message is that this is not *about not getting work done; it's just a different aspect of work."*

—Leslie Sprunger, Washington State University

Time of day. A program planner with years of experience in putting together university training events has found that morning, lunchtime, and afternoon programs typically have roughly the same attendance, but the audience thins out for evening events. After 5 p.m., many participants are pulled away from local professional development programs by family needs. Even if the event is away from campus, and thus away from families, participants should be encouraged to make the most of free evenings to network with each other or with local scientists.

Tip

Planning your training around a meal, especially if the session is held in the evening, can be a draw because it provides participants with additional networking opportunities.

Summer versus winter. It may be easier to hold a training activity for academic scientists in the summer because many of them do not have to teach and have more relaxed schedules in terms of committee work. But be aware that scheduling a summer event can also be extremely difficult because of vacations and conferences. In addition, new faculty members can come on board throughout the year; if any have a nine-month appointment, they may not be around during the summer. Also keep in mind that late August and early September are typically crowded with new academic-year activities and that at the end of a semester, faculty are busy with final exams and other academic responsibilities.

Timing of a Mentoring Workshop for Faculty

"Our mentoring workshop for faculty is offered on campus in the spring semester before classes begin. Faculty members are already back on campus from the break but not embroiled in classwork. This seems to be a relatively convenient time for this particular activity, which is three hours long."

—Melanie Sinche, University of North Carolina–Chapel Hill

Available Space

You may have to time your event to the availability of the place you want and can afford. For example, if you need to hold the training program on campus, the facilities you need for small breakout sessions or all-participant plenary gatherings may be reserved by others routinely on specific days.

Speakers' and Participants' Schedules

Planning for a training event also involves researching what participants, highly desired speakers, and guests have already posted on their calendars—conflicting events that would pull them away from yours. These include major research days at your institution; other events at your institution or in your community; significant local, regional, or national meetings; religious holidays; and vacations.

Conversely, you might have to schedule your training to take advantage of an open window on the calendars of certain people. For example, if you are set on having a specific speaker deliver the keynote address, you will need to work around that person's schedule. Similarly, if the leadership of your organization needs to attend the training event, your challenge will be to find a date that suits the busy schedules of several people.

How much lead time do I need?

You want enough lead time to get your event securely fixed on the schedules of your desired speakers and your target trainees. If you want your pick of speakers, it is a good idea to contact them at least a year in advance. You also will need lead time to secure the space for your training. For example, depending on the season, you may have to book space at a hotel or conference facility six months or a year in advance.

DEVELOPING A TIMELINE

Once you have decided when your training event will be held, you should develop a detailed timeline. A timeline will help you steer the planning process and determine the schedule for assigning tasks and monitoring progress. Depending on the size of your event, your timeline may span from several months to more than a year. (Examples of timelines can be found in the resources at *http://www.hhmi.org/labmanagement*.)

What to Keep in Mind

Here is some advice to bear in mind as you develop and use a timeline:

- Work backward from the event date.
- Be realistic. Build delays into the schedule.
- Be flexible. Know what deadlines are firm (e.g., your printing schedule for materials you plan to distribute at the training, booking dates for training and hotel space) and what can remain fluid (e.g., speaker confirmations), because you are bound to need some wiggle room down the line. Recognize from the start that the schedule's milestones may have to be adjusted a few times as the planning process moves forward.
- Anticipate busy times in people's schedules. Ask about vacation dates and other commitments well in advance and take that into account when developing the timeline. For example, you probably should not expect to get too much done in December.
- Be detailed. For each step, note who has to be involved (e.g., a photocopy center, a travel office, a caterer). Different people move in and out of the planning process as you move forward.
- Be aware that some steps will flow from previous ones, whereas others should be done simultaneously.

Tip

If you are planning a complicated training event—say, one that involves multiple sessions, meal functions, and hotel and travel arrangements—and your funds allow it, consider hiring a professional meeting planner to help you develop the timeline and keep you on schedule.

Tips for Sticking to Your Timeline

How do you keep everyone on track so that the timeline doesn't slip? The following tips can help:

- ❖ Make sure the planning team members and speakers are well aware of the schedule when they sign on for the project.
- ❖ Issue plenty of reminders to keep the schedule and its tasks on people's to-do lists.
- ❖ Use a checklist, and attach specific dates to all tasks.
- ❖ Don't try to do it all yourself. Spread the responsibilities out among the people who have signed up to help.
- ❖ Don't be afraid to ask for help if you are falling behind.

Managing the Planning Process

"You have to know you're going to be late with almost everything, because you don't have people whose only job is to work on the course. So build delays into your timeline."

—Laura Bonetta, BWF-HHMI Course in Scientific Management

"I've found the most valuable lessons to be the importance of delegating responsibility and breaking [course development] down into small chunks."

—Siobhan Corbett, Association for Academic Surgery

CHOOSING THE LOCATION

Many issues factor into decisions about where the training event will be held. Obvious ones are whether the training can be held in conjunction with another event, the cost of a facility, and the number of expected participants. Another dilemma for planners at academic institutions is whether to have the activity at home or away.

On-Site Versus Off-Site: The Cost-Benefit Equation

Program planners at universities generally agree that in an ideal world, their training events would be held off-site, largely because participants can better focus on the training and are more at ease about discussing sensitive subjects. But cost may be an impediment to this choice. Even a short retreat can be expensive, unless you have connections that steeply discount a site or offer it to you gratis. If your budget can accommodate some off-site time, ask yourself: Are the benefits worth the cost? Figure 3.1 may help you find the answer.

The Different Dynamic of Off-Site Retreats

"It's hard to get people to go someplace for two or three days, but it's clear that there is a different dynamic when people are in a room together relatively far away from where they normally function. From our experience, people are likely to be more relaxed, focused, and receptive to different experiences if they are physically removed from where they usually are."

—Leslie Sprunger, Washington State University

Figure 3.1. Pros and cons of on-site and off-site locations

On-Site Location	
Pros	**Cons**
Is convenient for most participants Depending on the facility, could involve little or no cost for meeting space Makes it possible to have plenty of help for "disasters" (e.g., staff with cars there, potential back-up speakers) Has resources (e.g., computers, photocopying machines) that are familiar and easily available Allows access to support staff you already know and trust	Lack of anonymity (e.g., if department chairs or principal investigators are present) can stifle interaction and squelch new ideas or frankness People may feel less committed to the entire event as other responsibilities may take precedence (e.g., scientists will be tempted to run to the lab to check on experiments during breaks or even during talks) Fewer chances exist for networking during the evening because most people will go home
Off-Site Location	
Pros	**Cons**
Encourages open discussion in an environment away from senior scientists and administrative staff from the same institution Fosters interaction among participants over a long day; opportunities for networking increase even more if the location doesn't allow people to return home at night Might induce a more active level of attendance and engagement from participants who pay some costs for an off-site locale compared with a free campus event	Costs for meeting space plus overnight lodging (if you need it) can be prohibitive Childcare, eldercare, and even pet care can be an issue for participants Staff travel may become an additional cost if the off-site location is far from campus Support staff can be of variable skill and reliability It is more difficult to react to a "disaster" (e.g., a speaker who doesn't show up) Resources (e.g., computers, Internet access, photocopying machines) may not be easily accessible or, if they are, may be expensive

Q/A

How can I minimize the costs of going off-site?

If you choose to take your training event off-site, you don't need to go far away. You may want to use a local venue so that speakers and participants can sleep at home, sparing you the expense of hotel rooms. You can also reduce your costs by having participants pay a fee to attend a training session at an off-site location. One benefit of working with a collaborating organization is that it expands the list of potential sites to hold the training.

Another strategy is to offer a mixture of off-site and on-site sessions. Sessions that involve more personal topics of discussion, such as mentoring, could be offered as a one-day session off-site (no overnight accommodations involved) to foster free discussion. Sessions on less personal topics, such as grantsmanship or publishing papers, could be offered on campus, to take advantage of your institution's staff expertise. If your training will be held entirely on-site, see page 44, "Encouraging Open Discussion."

Space: The Final Frontier

As you consider the pros and cons of staying on home turf or venturing off-site (or a combination of the two), take a close look at your requirements for space. These will be determined primarily by the formats you choose (e.g., lecture-style sessions versus small-group discussions) and the total number of participants you expect. For example, if you plan to split the group into two concurrent sessions either on the same or on different topics, you'll need at least two rooms of reasonable size, not just an ample arena for plenary sessions. If you want multiple small-group breakout sessions, you'll need several rooms—preferably intimate rather than cavernous spaces—to encourage interaction.

Other considerations for the space you choose will involve asking the following questions:

- ❖ Does the facility have sufficient capacity to handle your expected attendance?
- ❖ Does the facility have the necessary audiovisual equipment—a projection system for PowerPoint presentations, table and chairs for panelists, lectern for keynote speakers?
- ❖ Is there a place to eat or will people have to go off-site?
- ❖ Is there a lounge area for informal interactions during the training?

Tip

If you are holding a multiday course, you may want to provide a quiet room where nursing mothers can tend to their children.

How Large a Group?

Another element in choosing the location for your event is the number of trainees you want to reach. You want to make the most of the resources you are expending by delivering training that will benefit the maximum number of participants but still allow each individual to get the most out of the program. What number of participants do you need to achieve that?

As usual, the answer varies widely across training activities and sponsoring organizations, and it has much to do with format. A lecture-style presentation or keynote address can reach scores of people effectively—probably as many as you have seats to accommodate, provided sound is audible throughout the room and PowerPoint slides can be read from the back rows.

However, sessions that involve interactive components work best in small groups, say, of 10 to 25 people. You can achieve this by splitting the larger audience into smaller groups that will attend different sessions concurrently or by restricting your enrollment to a smaller group of people. Your choice will have to take into account your speakers' schedules (e.g., whether they can moderate several small-group discussions held in succession) and the availability of small rooms for breakout sessions at the facility where you plan to hold your event.

For more on room set-up and size requirements, see page 66, "Meeting Space."

TAKING ADVANTAGE OF AN EXISTING EVENT

Most professional societies hold scientific meetings or retreats for their constituents on a regular schedule. Piggybacking on such an event is a smart way to cut costs without cutting corners in content or quality. It also simplifies the planning process somewhat, because some decisions have already been made, such as when and where the event will be.

A tandem event with a professional society can bring you other benefits:

- Expertise in logistics through the society's conference staff or contract services
- Ready-made advertising via the society's membership list and established promotional channels
- A low- or no-cost means of delivering training as "value added" for conference attendees, because they are already paying for travel and lodging and the society is already paying for the space
- A pool of possible speakers from among conference registrants whose basic attendance costs are already covered
- Participants whose tight schedules might prohibit attendance under other circumstances
- A collaborating organization that is equally vested in the success of the event
- Validation of the importance of scientific management training by the society and its leadership

Tip

If you are at a university, this type of joint endeavor works best if the society is holding a meeting at your university or nearby—and if the target audience for the training is working in the discipline represented by the society.

When you hop aboard someone else's event, your activity will be positioned either during the gathering or immediately before or after it. Holding your training during the meeting may be the lowest-cost option, because your partner is covering charges for the space and it brings you a captive audience at an event already in progress. But a mid-meeting slot is also liable to be more limited in length and scope—perhaps a two- or three-hour workshop covering only a couple of topics—because the meeting agenda will reflect the professional society's priorities, not yours.

On the other hand, if you go for a bookend position, you may be able to stage a training session of one to one-and-a-half days, but you will probably have to pay for the space and meals. In most cases, a premeeting rather than a postmeeting schedule is preferable. As meeting organizers can attest, it is hard to keep people around for the final hours of the most prestigious meeting, let alone an add-on event.

Tip

Consider the time slot you are offered. For example, attendance may be poor at a session held early on a Sunday morning at the end of the meeting and it may not be worth the effort and expense for you to hold the training, despite the "convenience" of piggybacking onto the meeting.

Scheduling Your Event During an Existing Meeting

"I'm working with the Federation of American Societies for Experimental Biology (FASEB) to do a three-hour session called 'Creating an Individual Development Plan' at their annual meeting. FASEB is covering the costs. It's an add-on to the existing program, so there's no extra expense. The only charge is for travel and honorarium for outside speakers and for food afterward. The session will be on Saturday to eliminate concerns about conflicts, because FASEB does not usually schedule content for that day. Enrollment is open; people can sign up before the meeting. The session will have some open discussion time. After 6 p.m., there will be food to encourage people to stay and interact."

—Philip Clifford, Medical College of Wisconsin

"My first lab management event will be a two-hour workshop in the middle of the annual meeting of the Society for Developmental Biology (SDB). Having the workshop be part of a scheduled meeting is wonderful for visibility and ease of delivery because the infrastructure is already there; we're just plugging in. We'll have one session on finding a job and another on writing a dynamite proposal. Because the workshop will be during the meeting, it will incur no new or additional expenses. The president of SDB allocated funds from the meeting to cover travel and other costs for our four speakers. The mid-meeting timing was dictated by the budget, but it also guarantees an audience from people who will already be there. Attendance is open; there are no capacity limits because our workshop is one of two concurrent sessions. This is the first of what may be several mix-and-match modules that we offer as individual workshops at regional SDB meetings. Most of these meetings are only one-and-a-half days long, so a two-hour module would be appropriate."

—Karen Bennett, University of Missouri

Scheduling Your Event Just Before an Existing Meeting

"We scheduled our training for junior surgical faculty just before the annual Clinical Congress of the American College of Surgeons (ACS). The idea is that ACS would be a magnet. We were concerned about the financial risk of a freestanding event without the draw of the college—we had no idea what attendance would be—and we didn't want to plan a concurrent event that would compete with ACS. Most of our members will attend the ACS meeting anyway, including senior members who would be available as faculty. Having a one-and-a-half day course just before the ACS meeting will encourage attendance, limit attendees' time away, and cut down on their travel costs."

—Siobhan Corbett, Association for Academic Surgery

How do I approach a potential professional society partner?

First, do some homework to develop a well-thought-out plan to make sure that your idea fits with the society's mission, which is usually stated plainly somewhere on its Web site. If your concept falls outside the society's specified purpose, it is unlikely that you will be able to garner support, especially financial.

After reviewing the society's mission, talk with the society's staff (e.g., executive director, education officer), the chair of a relevant committee, or a member of the governing council you know has an interest in scientific management training. You will need to make clear the value that your event will bring to the society's meeting and its participants and be able to justify any costs to the society. Another selling point is your offer to be involved in organizing the event, backed up by well-considered ideas for the program and other possible funding sources, if needed. Make sure you contact the society as far in advance as possible. (Also see page 17, "Collaborating with Another Organization.")

Chapter 4

DEVELOPING A BUDGET AND GETTING THE FUNDS TOGETHER

In This Chapter

One of the most difficult challenges faced by training event organizers is figuring out how to pay for everything. This chapter offers guidance on developing a realistic budget, discusses strategies for obtaining additional funds, and provides tips for cutting costs.

THINKING THROUGH SOME BUDGET DETAILS

First you will have to figure out how much money you will need, from the minimum to the optimum amount. To do this, create a list of items and their estimated costs. Include everything you can think of. In addition to costs for meeting space and refreshments, other expenses may come into play. For example

- Will speakers receive honoraria? Will you need funds to cover speaker travel and accommodations?
- How much will you need to conduct a pretraining needs assessment and posttraining evaluation?
- Will expensive assessment instruments be used in the training (e.g., Myers-Briggs Type Indicator, Skillscope 360-degree assessment)?

Your list of budget items should be a planning tool that you adjust as you gather more information about attendance, speaker fees, and so on. (A checklist of budget items for a large-scale event, which you can use as a starting point, can be found in appendix 1.) The more detailed information you collect in advance, the less chance of unpleasant budgetary surprises later.

Tip Try to obtain a copy of the budget for a recent, similar event. As always, don't hesitate to ask for help—your organization should have several sources of budget expertise.

Once you have a list of budget items, ask yourself the following questions:

- How much money do I have to work with? Do I have the minimum funds necessary to hold the training? Are there budget items that I can do without?
- Is the event expected to incur a profit?
- Do I need or want to charge registration fees to training participants?

- What kind of in-kind support is available to help offset costs?
- Do I need to seek supplemental funding or find an organization to cosponsor the training?
- If I have collaborating partners, what will they contribute in funds and in-kind support? Do they have internal budgeting conventions (e.g., definition of the fiscal year) that I need to be aware of?
- Can the budget accommodate unexpected costs or fewer than anticipated participants?
- What happens if the grant funding or in-kind support I am counting on does not materialize? For example, will I delay or cancel the training?

You should also determine who will approve the budget, who will authorize payments, and how payments will be made.

Training Event Costs

Below are some examples of costs for various training events (keep in mind, however, that they are based on 2005 figures).

Speakers and Food for Lunchtime Seminars

"Our current biweekly series is held at noon for an hour, and we provide lunch. Half the budget is for honoraria and travel for outside speakers; the other half is for pizza and sodas. Food runs $300 to $400 per session, which is pretty inexpensive for an attendance of 80 to 100. For speakers in the Milwaukee area but at another institution or for a professional mediator, we pay honoraria of about $300. For outsiders, when a trip is involved, the honorarium is usually $500. Some speakers set their own fee scale."

—Philip Clifford, Medical College of Wisconsin

Funds from Participants

"We provided breakfast and lunch both days, and hors d'oeuvres and drinks on the first night. Our principal speaker costs were the cost of a professional leadership training team and the costs associated with two leadership skills assessment instruments. The attendance cost was about $260 per person. We covered approximately half the cost of the course through grants from a local foundation and other private funds and we charged about $95 per postdoc participant, $175 per faculty participant, and $225 per non-UCSF participant to cover the remaining costs. Our postdoctoral association was able to provide partial scholarships to all postdocs who expressed a need. Most postdocs and PIs used research grant money to pay for the course."

—Samara Reck-Peterson, University of California–San Francisco

Grants and Registration Fees for a Summer Session

"The American Society for Microbiology (ASM) tries to minimize expenses, for example, by holding events on a university campus in the summer. For our five-day institute, we had an NIH R13 grant, which helped lower registration fees. Participants pay for housing and travel. I set up a contract to guarantee a rate at a conference center on campus; participants then make their own registration arrangements. Participants' fees have been $100 to $150. This year they're going up to $200. The fee covers food and some handouts. The host institution absorbs other costs and may pay for audiovisual and PC support people. Overhead costs run about

$35,000, and the host university will cover part of those as well. ASM provides $10,000 to $15,000 in unrestricted funds, plus staff time. That covers speakers, handouts, and audiovisual-related items but not meeting rooms."

—Amy Chang, American Society for Microbiology

Big-Ticket Item: Refreshments

"One 'down side' to appending an event to a society conference is that food and beverage charges at conference facilities (whether hotels or convention centers) tend to be astronomical—meals and drinks represent high-return items for the properties. So, while you might save money by availing yourself of 'free' space, you may lose at least a portion of the advantage in additional costs for meals. Case in point—we're budgeting over $30,000 for food and drinks for 120 people for a two-day (Thursday afternoon through Saturday morning) course in Chicago. Admittedly, the Windy City is more expensive than many, but food and beverage is the largest single cost center for the course."

—Crispin Taylor, American Society of Plant Biologists

Cosponsors for a High-Overhead Event

"When we hosted a large-scale campus event and were faced with major overhead costs to use the campus conference center, I enlisted many departments as cosponsors. This approach generated a great response. The cost to cosponsors was only $500 to $1,000 per department, and chairs typically have this kind of discretionary funding in their budgets. The sponsoring departments were listed in the event program and in all publicity materials, and were mentioned during the event. Here at UNC, there are 14 schools and colleges I can approach, in addition to local colleges and universities, that can serve as cosponsors to help defray the costs of a seminar or series that has broad appeal. This approach has been quite successful. Additionally, the North Carolina Biotechnology Center here in the Research Triangle area has small grants that UNC has received for professional development events on biotech and biomedical research topics."

—Melanie Sinche, University of North Carolina–Chapel Hill

Tip

If your target trainees include postdocs, consider factoring a limited number of fellowships into your budget planning so that postdocs who couldn't otherwise attend are able to.

SECURING ADDITIONAL FUNDS

Potential Funding Sources

After determining the amount of funding you will receive from your organization and adding up the costs of your budget items, you may find that you will need to obtain additional support. One option is to partner with another organization that can help shoulder the funding load (see page 17, "Collaborating with Another Organization"). Another possibility is to seek grant support from federal or private-sector funders.

Opportunities to apply for federal funding directly are limited, especially if you are just starting out and planning a small-scale event. For example, most support for this type of activity from National Institutes of Health (NIH) agencies, such as the National Institute of General Medical Sciences, is subsumed within larger, multicomponent research training and career

development grant initiatives. NIH does, however, support investigator-initiated grants (e.g., R13 grants) for large scientific conferences, but awards are contingent on the priorities of the institutes and centers within NIH.

The National Science Foundation (NSF) is a possibility. It funds large-scale professional development initiatives for scientists, such as its ADVANCE initiative for women in science and engineering careers, but the agency may also consider funding small workshops. In addition, NSF might consider a request for funds to evaluate a program or activity, especially if there is a plan for how to use the results.

It's Best to Double-Check

"When you apply for grant support, remember to carefully read all of the instructions—even if you have applied to the same agency many times before. Requirements can change, and proposals will not be reviewed if they don't conform to the new requirements."

—Ida Chow, Society for Developmental Biology

Instead of applying directly for federal funding, you may want to contact the people at your university or society who administer its federal training and other large-scale professional development grants to see if they can write your training activity into the next application for their grants. Alternatively, an administrator who is flexible and interested in the type of training you envision might be able to release some funds to you through an existing grant.

Tip It may be easier to obtain small contributions from several interested sources than to convince any one of them alone to be a substantial funder.

It is also worth considering private-sector funders. Foundations, associations, scientific institutes, and companies that share your organization's mission are promising places to contact for funding. Regional and local private-sector organizations are more likely than national ones to support local training events. Local chapters of national organizations, such as associations for university faculty might be worth contacting. In addition, a professional society that has members (but not necessarily a headquarters or other office) in your area might sign on as a sponsor and help advertise the activity to its members.

Local scientific institutes and biotechnology and pharmaceutical firms are also worth a try. They have a vested interest in supporting the professional development of beginning scientists and broadening their access to potential employees. Those in your area might be interested in cosponsoring your training event—especially if you invite one of their staff to give a talk. Another likely partner is a smaller organization that can't shoulder such a program alone but might be delighted to cosponsor your event if its people can attend. Check with fundraising staff at your organization to find out about potential local funding sources and cosponsors for your event.

Note: HHMI and BWF support scientific management training at the national level through the publication of this volume. HHMI is *not* a potential source of funding for regional and local scientific management

training activities. BWF occasionally supports regional scientific management training events jointly organized by multiple institutions for their graduate student and postdoc constituencies.

Avoiding Conflicts of Interest

If you approach a company for funding or any form of sponsorship for a training activity, be on high alert for even the appearance of conflict of interest. Institutional guidelines for conflicts of interest differ, but in the context of lab management training events, conflicts of interest are most likely to arise if you solicit or accept money or gifts from present or potential vendors (because this may call into question the motivation for your purchasing decisions). To be safe, it is a good idea to check with the appropriate authorities at your organization before you accept support.

Conflict of Interest

"Members of our postdoc association solicited lab vendors to help cover the costs of a postdoc event without the dean's knowledge. When he found out, he thought this was a conflict of interest since the postdocs buy products from these vendors. Instead, he decided that I could solicit vendors without a conflict of interest, since I don't have a lab."

—Lisa Kozlowski, Thomas Jefferson University

Asking Participants to Pay: Pros and Cons

Still another potential source of funds is the training participants themselves. There are benefits and drawbacks to registration fees that cover part or all of a participant's expenses. Benefits include an increased likelihood that registrants will value the activity and attend the entire event. Registration fees will also give you more money to provide for things that will enhance the training. Furthermore, you will get a much more accurate count of participants, which will help your planning of room size, refreshments, and other logistical matters. Drawbacks include the possibility that some participants, such as postdocs, will not be able to attend because they cannot afford to do so. Understanding both sides of this equation should help you make decisions about who pays for what. Even if participants don't pay a registration fee, having them pay for travel and lodging (if you have an off-site event) will help you keep costs down.

The following are some examples of registration fees charged for lab management training activities:

- ❖ $25 for an on-site general grant-writing session (not enough to cover all costs but enough to encourage attendance)
- ❖ $95 for postdocs ($175 for faculty) to attend a two-day, on-campus leadership and laboratory management course (fee includes course materials and meals); a limited number of scholarships available for postdocs who have no other means to pay for the course; and a $225 fee for registrants not affiliated with the university hosting the event
- ❖ $200 to attend a five-day career development course, held at the conference center of a local research institute (fee covers meals and some course materials; participants pay for their housing and travel)

Tip

Consult the catalog of continuing education programs offered by universities on topics such as personal finance to get an idea of the "going rate" for a similar-length session on scientific management issues.

TIPS FOR CUTTING COSTS

If supplemental funding or partnering with another organization is not an option, you will have to find another way to make your training program fit your budget. Experienced planners point out that the amount of funds does not play as large a role as one might think in the quality of a training program. In budgets for training activities, big-ticket items fall into three categories: facilities, speakers, and food. Costs for all three, as well as for training materials, can be minimized without curtailing content. Here are some tips from experienced planners that can help you stretch the funds you have.

Doing a Lot with a Little

"People who don't plan training programs regularly may not realize how inexpensively they can be done. You can get such positive results and have a large number of people attend your programs without spending much money at all—in some cases, just the cost of nametags."

—Melanie Sinche, University of North Carolina–Chapel Hill

Take Advantage of Nearby Resources

You could

- Use campus facilities that don't have a rental charge (e.g., a large lecture hall or auditorium).
- Choose speakers who live nearby or will be visiting the area for a meeting or lecture.
- Ask a local business school, your human resources department, or your university's career center to conduct a Myers-Briggs Type Indicator and other assessments for a leadership training session. (Keep in mind that there is still a fee for each person who completes the assessment.)
- Solicit materials, such as boxes of pens and paper, from vendors; vendors are often happy to provide supplies because it is good advertising for them. (Check first with your organization to make sure there is not a conflict of interest.)
- Ask people you have a working relationship with (colleagues or society members) to be speakers without an honorarium. Depending on their career level, they may be more interested in adding the event to their CV or having a chance to espouse their views than in banking a small check. In such instances, don't forget to send a formal invitation and a follow-up thank you that the speakers can keep in their files and show to department chairs.

For more ideas on resources that are close to home, see page 16, "People Who Can Help," and page 47, "Places to Look for Speakers."

Be Imaginative When Planning Meal Functions

Consider the following:

- ❖ Schedule the session so that you can serve coffee and cookies or a continental breakfast rather than lunch or dinner. If you serve lunch, boxed lunches may be less expensive than a full hot lunch spread. Or, try using a local deli or even a pizza parlor to provide the food.
- ❖ If you rent meeting space for an overnight event, look for a facility that includes breakfast in the room charges.

For more suggestions on managing catering and other logistics-related costs, see chapter 8, "Making It Happen."

Chapter 5

FINE-TUNING THE AGENDA

In This Chapter

This chapter shifts focus from making more global decisions about the training event to narrowing down the topics, learning objectives, and formats of the sessions themselves.

NARROWING DOWN THE SESSION CONTENT

Regardless of whether your training covers an array of scientific management issues or focuses on a single aspect, such as grantsmanship, the following tips can help you select the specific topics that speakers should cover.

Develop Session-Specific Learning Objectives

Write an overview of each session that includes brief narrative descriptions, information about potential speakers, and an outline of topics. Most importantly, spell out exactly what information or skills you want participants to learn. The clearer you are about what should be imparted, the higher the odds that it will be. (For examples of session objectives, see page 4, "Setting Goals and Objectives.")

Think It Through

"The more effort and thought you put into carefully defining the scope of the session and what you want the participants to get out of it, the easier it will be to identify speakers appropriately positioned to provide the information or help generate the discussion that will lead to the desired outcome."

—Crispin Taylor, American Society of Plant Biologists

Understand Trainees' Career Development Needs

When writing down the proposed content for a session, ask yourself this question: If I were a postdoc or junior faculty member, what would I like to learn from this session? You'll probably come up with a list of topics. Separate critical information from nice-to-know content. This will help ensure that you cover all fundamentals in the allotted time. Remember, content that is not absolutely critical can always be provided in handouts.

Find Out What Information Is Already Available

Print or Web-based material can either guide or supplement a session, and the titles and URLs can become a resource list for participants. For example, you may want to look at appendix 2, which contains summaries of session content from the 2005 BWF-HHMI Course in Scientific Management. Publications such as Kathy Barker's *At the Helm: A Laboratory Navigator* and

BWF-HHMI's *Making the Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty* (http://www.hhmi.org/labmanagement) also contain ideas for session content as well as extensive lists of print and Web resources.

Universities and societies that have established career development programs for beginning scientists can also provide good ideas, for example, the University of North Carolina–Chapel Hill (http://postdocs.unc.edu), the University of Pittsburgh (http://www.oacd.health.pitt.edu), the National Postdoctoral Association (http://www.nationalpostdoc.org), the Laboratory Management Institute at the University of California–Davis (http://www.research.ucdavis.edu/LMI), and the Work–Life Resource Center at the University of California–San Francisco (http://www.ucsf.edu/wrklife).

Check Previous Surveys of Trainees

Evaluation data from earlier training activities (yours or another organization's) can provide rich veins of topic-specific information; mine what's available. It can help you tailor the content to better serve the audience by identifying what topics are useful (and which speakers not to invite back).

FIGURING OUT THE FORMAT

What Works Best?

Standard formats include keynote addresses, panel discussions, question-and-answer (Q&A) periods, lectures, and breakout sessions for small-group discussion or peer critiques. These can be combined in assorted ways to good effect to meet your training objectives. How do you decide which formats to use? Experienced training organizers offer some advice.

Vary formats to help hold participants' interest. No single teaching style works best for every person; presenting the same information in different ways and combining lectures with more interactive approaches can extend your effective reach. Speakers and participants alike will appreciate opportunities to move around and combine listening with asking.

Tip

A "mock study section" can be an effective way to convey the grant review process. (See "Inside the NIH Grant Review Process" at http://www.drg.nih.gov/Video/Video.asp for some ideas.)

Q&A

What are some examples of topics that lend themselves to a mix of formats?

Many topics are suited to a session that combines lecture and interactive elements. For example, in a session on writing a good scientific paper, an overview could be covered in the lecture, with participants breaking up into small groups afterward to work through the development of an abstract. A session on ethics could begin with a speaker presenting the key concepts in a case study or two, followed by small-group discussion, possibly led by facilitators.

Consider a panel-style session when a diversity of views is desirable. When multiple viewpoints would be informative—say, for a session on mentoring or interviewing for a faculty appointment—a panel is ideal. How many people should be on a panel? A commonsense guideline is to have enough panelists to represent the desired diversity of background and experience, but not so many that the session is too long and the Q&A is too short. Many experienced planners find that a three-person panel works well for a 90-minute session because it ensures plenty of time for Q&A.

Be sure to allot sufficient time for Q&A. Participants value Q&A periods. They are able to follow up on topics of most interest to them and to ask more-senior professionals how they have handled particular situations.

Tip

A good moderator is key—one who can minimize dominance by one speaker on a panel or in a Q&A session and encourage participation by the entire audience.

Make sure you include hands-on or interactive segments. A recurring refrain from program planners is the value of time for participants to practice what they have learned and reinforce those lessons. Virtually all topics are adaptable to an interactive learning segment, but some are especially helped by this. At the 2005 BWF-HHMI Course in Scientific Management, for example, the rather dry topic of project planning—which many beginning scientists approach with resistance—included a case study for groups of 8 to 10 participants to discuss during lunch. Also popular at both the 2002 and 2005 BWF-HHMI courses were small-group breakout sessions in which participants discussed case studies that represented challenging situations often encountered by beginning scientists. These case studies can be found in the resources at *http://www.hhmi.org/labmanagement*.

Consider including leadership self-assessment exercises. Interpersonal management skills sound like common sense when discussed in a lecture, but participants will get a lot more value out of activities that help them gain insights into the ways they perceive information and interact with other people. At the 2005 BWF-HHMI Course in Scientific Management, participants were presented with the results of two personality and management skills assessments they had taken before the course—the Myers-Briggs Type Indicator (*http://www.myersbriggs.org*) and the Skillscope 360-degree assessment, published by the Center for Creative Leadership (*http://www.ccl.org*). After participants were led through a series of interactive exercises by a facilitator, the results of these assessments gave them a better understanding of their communication and leadership styles.

Q&A

Beginning scientists, especially postdocs, sometimes have trouble seeing the relevance of the Myers-Briggs assessment and other leadership development activities. How can training organizers convince them that these are worthwhile?

Organizers should make clear the connection between skills learned in these activities and results in the lab: effective conflict resolution, better mentoring, team building that binds people into a motivated and productive

unit, and an encouraging and rewarding work environment. (Chapter 3, "Laboratory Leadership in Science," in the second edition of *Making the Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty* provides examples of how assessments such as the Myers-Briggs can be used to help beginning scientists improve their leadership skills.)

Organizers also need to make sure that any pretraining assessments that are conducted are crafted in language that is relevant to the academic research setting instead of the business setting, and that the training exercises themselves reflect the real-life challenges faced by scientists (see page 52, "The Importance of Science-Speak").

According to the evaluations of the BWF-HHMI courses, many participants were surprised to find the personality assessment and small-group exercises to be valuable (see appendix 2, "The BWF-HHMI Courses in Scientific Management: A Case Study").

Include small-group breakout sessions, when possible. These can be used to offer more in-depth information or feedback on a variety of topics. You could allow participants to opt for one session in a multisession menu or allow enough time for participants to attend several sessions of their choice. If you want to reach a large number of participants in a small-group setting, it may be feasible to offer sessions on the same topic multiple times during a training event. Before making a commitment to this approach, however, you want to be sure that

- You have enough interested attendees for the number of repeat sessions you are contemplating.
- Your speakers are willing to lead the session more than once or you have several qualified facilitators for those sessions.

Ultimately, however, there is no hard-and-fast rule for what works. Sometimes you just have to close your eyes and choose, knowing that any format can be a crowd-pleaser with an engaging speaker. Feedback from your post-training evaluation will be key in telling you what works and what does not.

ASM's Five-Day Institute

"For a training activity with postdocs and grad students, I used a five-day interactive, intensive institute for high school teachers as a model, even though the content and audience would be different. The five-day institute engages participants in hands-on activities, and they come away with actual products. It covers grant writing, scientific presentation, effective teaching, and career planning. Participants have to bring a 10-page pre-proposal and a 10-minute PowerPoint presentation on their research. They leave with a written proposal—or at least the goals and aims—marked up from peer review. They do a mock study section. They also leave with a totally revamped scientific presentation. After didactic training, they rework it, present it to each other in small groups, then participate in critiques for ideas on how to improve it."

—Amy Chang, American Society for Microbiology

Session Length

How much time do you need to cover a given topic? Again, there are no magic formulas. The same session can be run for two hours or two days, depending on how much information you want to disseminate, the hands-on activities you want to do, the number of viewpoints you want to present, the amount of time for Q&A, and the breakout sessions you want to offer.

In general:

- Less than an hour per topic is probably unrealistic for providing any type of meaningful information.
- An hour can work for a lecture or keynote address.
- With a good moderator, panels of three or four people can fit comfortably in a 90- to 120-minute session with time for Q&A or other interactive components.
- More than two hours works well for a sequence of lecture, practice, critique, and revision. That type of intensive structure, with hands-on time for reinforcement of learning, has special value for certain skills, such as interviewing for a job, presenting a paper, and writing any part of a grant application. If the session lasts longer than two hours, you will want to schedule a break during the session.

Tip

Your speakers may have their own ideas, based on experience, about how much time they need to cover the assigned topic comfortably. However, you may find that they want more time than you can allot to them.

Limitations of Lunch-Hour Learning

"About 100 folks attend our biweekly lunch series from a total of about 160 postdocs and 300 graduate students—a pretty good turnout. The disadvantage is that more complicated topics can't be dealt with in a one-hour session or series of them. We need to figure out whether we can cram some of these issues into our current format or whether we need some longer sessions."

—Philip Clifford, Medical College of Wisconsin

Variety as the Spice of Academic Life

"We have found it essential to offer a wide variety of formats, lengths, and times of day and year. For example, a schedule of 8:30 a.m. to noon every day for five days for a minicourse on scholarly writing works well for some people; shorter sessions work better for others. Grant writing is more labor- and time-intensive than other topics, so some sessions on this topic have been a full day. However, we also offer a one-and-a-half-hour session on finding funding in the participants' training area. This session takes place in a computer lab and is totally interactive but fairly short. We rarely offer anything after 5 p.m., as that time doesn't seem to work well for most people. When we offered a weekly professional development course for a full semester (13 weeks), we found that participants missed important material because it was just too long."

—Melanie Sinche, University of North Carolina–Chapel Hill

Pacing Multiday Courses

"We can push people for long days the first two days because they come in pretty energetic. We like to bring people in the night before for a kick-off, and participants start doing assignments that first evening for presentation the next morning. Our experience is that there's no need to accommodate travel fatigue and waste that time. We start with a strong speaker and topic the first morning. Because everyone tends to show up for the early morning sessions, this is a good time for participants to critique their own presentations. We provide meals to keep them there. We don't want them wandering off, because they can use mealtime as networking time. We have a series of speakers with different personal and professional perspectives, and lots of time for Q&A. After lunch, we have an activity where they have to do the work—very hands-on. Some didactic time is needed to break up long afternoons. Evenings are discussion time."

—Amy Chang, American Society for Microbiology

Intentional Breaks: Time to Mingle and Make Contacts

As you work your way through the agenda, whether it is for a single-topic session or a multiday course, avoid the temptation to fill every minute. Consider the fatigue factor; you don't want to exhaust the training participants. Remember that breaks are beneficial; they are not wasted time. Especially for events with long, information-packed days, people need breaks between sessions to use restrooms, to stretch, to touch base with home institutions and families, and to refuel with snacks.

The breaks between sessions and unstructured time have other benefits as well. Participants want opportunities to network with their peers and with the speakers. One program planner has found that 15- to 30-minute breaks work well for a group of 100. A longer block of social time—a reception or meal—is also valuable. Although food can be a substantial cost, experienced planners realize it sets a tone conducive to chatting—the kind of informal networking that participants consistently say they find valuable.

The Benefits of Breaks

"We are constantly being told by people who attended the BWF-HHMI courses that one of the lasting benefits has been the connections they made during the breaks and social events with other scientists who were at a similar point in their careers. We found that the expense of the breaks and the time we made for them in the course schedule were well worth it."

—Maryrose Franko, HHMI

Encouraging Open Discussion

It is difficult to have an open and meaningful discussion about sensitive subjects, such as how to be a good mentor or how to deal with sexual harassment, if your supervisor or a senior colleague is sitting in the room with you. An off-site venue can offer a certain degree of confidentiality because participants are more likely to be away from senior staff in their departments. Regardless of whether you hold your training activity off-site or on home ground, here are some tips for encouraging frank discussions:

- For sessions where participants submit case studies in advance and small-group discussion of the case studies is part of the teaching plan, be sure you make assurances of confidentiality explicit in the registration materials.

- If possible, try to separate participants into groups where it is highly unlikely that someone will be sitting near a supervisor or mentor. That may mean having separate sessions for different categories of participants, such as junior faculty and postdocs.

- At the start of sessions where sensitive information may arise, remind participants about the need for frank and open discussion that is carried out in a respectful, professional manner and spell out the ground rules. An important one is that confidentiality is critical. You can instruct participants by emphasizing, "What is said here stays here." Those who have used this approach report that people understand the stakes and abide by this injunction.

- Prepare facilitators to gently stop questions that turn into personal stories or accusations of particular people. Although these accounts may be relevant, it is the facilitator's job to keep the discussion from becoming too personal and ensure that it stays on track. For example, the facilitator might say, "You raise an interesting point, let's see if anyone else has thoughts about [topic x]." Or "That certainly is a concern, perhaps we can discuss it further at the break."

Making It Safe to Share

"Anonymity is very important for topics such as mentoring, collaborating, and lab leadership. It's the only way to get an honest and useful dialogue."

—Maryrose Franko, HHMI

Chapter 6

FINDING AND WORKING WITH SPEAKERS

In This Chapter

FINDING GOOD SPEAKERS

The wisdom on finding speakers—especially ones who will speak for free—can be distilled as follows:

- Be resourceful.
- Network.
- Just ask.
- Ask early.

Places to Look for Speakers

There are myriad places to find qualified people who will speak at your event without breaking your budget. Here are some ideas to start your search:

- Begin with friends and colleagues at your own university or professional society, and then broaden out to include local employers and chambers of commerce. Local biotech and pharmaceutical companies are also places to find speakers.
- Revisit the resource list you developed when you started the planning process (see page 16, "People Who Can Help"). If you're at a university, try the technology transfer office (a source of contacts for local start-up businesses), the career center, and other offices that typically invite speakers to campus.
- Look places you might not otherwise. Many senior administrators who don't normally lecture—provosts, deans, associate deans, and directors of institutes—are informative and polished speakers.
- Check out alumni databases. For training grant submissions in many disciplines, some funding agencies and universities require reporting on employment outcomes of recipients of their grants. Call alumni and ask whether they have any suggestions. In fact, alumni are often eager to be speakers themselves as a way of giving back to their alma maters.
- If you have already conducted training activities, consider asking participants of previous activities for suggestions or to serve as speakers themselves. They will be familiar with your goals and materials.

Tip

Think broadly about who at your university or society might be involved in providing career development training. For example, the people who put together new faculty orientation seminars, "possibilities in our field" events for undergraduates, or "preparing future faculty" programs may have a roster of good speakers to share.

It Never Hurts to Ask

"For a career panel in Research Triangle Park, when I needed a Ph.D. scientist who had interviewed other Ph.D. scientists, I went to my undergraduate alma mater's alumni database and typed in 'North Carolina.' There I found someone in the area who had a Ph.D. and who graduated the same year I did. I cold-called him and introduced myself as a fellow alumnus. His tone turned from a 'Who is this calling me?' to a 'Hmm, this is someone I have something in common with, so I'll hear what she has to say.' He listened, suggested his boss, and the next thing I knew, I had my panelist."

—Lisa Kozlowski, Thomas Jefferson University

Improving the Odds That You'll Have a Good Speaker

The most important qualities of good speakers are their knowledge of the subject and their ability to engage an audience. This is how you can find potential speakers who meet both these qualifications:

- Be on the lookout for good speakers when you attend conferences and seminars. When you come across good speakers or people who might know one, collect business cards, introduce yourself, explain what you do, and keep in touch.
- Ask all your friends and colleagues for possible leads. Make sure that either you or someone whose judgment you trust has seen the speaker in action. Whenever possible, supplement referrals by attending events where prospective speakers are giving talks so you can hear them in person. If you cannot attend the speakers' presentations, take a look at their CVs to see if they have experience in teaching or giving talks, and try to talk to them by phone to get a sense of their communication skills.
- Give your speakers as much information as possible about your training event and try to gauge their level of enthusiasm and commitment to it.

Tip

Although it is nice to have an in-demand, well-known scientist as a speaker, it may be better to have a lesser-known scientist who is dynamic and committed to speaking at your event and who will put in the time necessary to make the session a success. In addition, sometimes a more junior faculty member—for example, someone who has just been awarded tenure—may have more relevant things to say to your target audience than a senior-level scientist.

Narrowing Your Choice

Once you have a list of potential speakers, you need to narrow the field. The suggestions below on how to proceed come from a cross-section of people responsible for creating training programs in scientific management. For each topic, workshop, or session:

- ❖ Consider any budgetary constraints that will be a factor in narrowing down your list of speakers.
- ❖ Rank your top candidates on the basis of comments from other people or your own assessment of the speakers.
- ❖ Make sure you have diversified your speaker portfolio. Look at your list of names and pick people with differences in experience (professional background and communication style) and career stage (e.g., senior versus junior faculty). Demographics—gender, age, and marital and parental status—also can be relevant aspects of diversity, for example, for a panel about balancing home and work life. Differences in cultural perspectives should also be taken into consideration, for example, in a panel session on mentoring. If you do not have enough diversity, ask around for additional referrals.
- ❖ Reassess your choices on the basis of who accepts your invitation. For example, if two women accept the invitation to sit on a three-person panel, you will probably want a male speaker for the third slot.

A BIT ABOUT SPEAKERS' FEES

You will probably find at least some knowledgeable, engaging speakers from among your colleagues and contacts who will not expect remuneration beyond travel costs (However, you may want to give these speakers a gift, say, a bookstore gift certificate, as a way of saying thank you.)

If you end up having to pay some speakers an honorarium, you should decide on the amount on the basis of your budget and what you are asking the speakers to do, and communicate that figure to the speakers when you first approach them. Typical honoraria for speakers from academia run from about $300 to $1,000, depending on whether travel is involved and the extent of the speaker's participation in the training program. Professional consultants, on the other hand, will charge anything along a continuum of, say, $350 total for three hours to more than $600 per hour. Consultants usually state their fees up front, but if they do not, it is your job to ask. Some consultants have an all-inclusive flat fee; others charge for travel time, preparation work, or both. To avoid unpleasant surprises when the bill arrives, you need to know not only the fee but how it is calculated—everything the speaker considers billable time.

COMMUNICATING WITH SPEAKERS

Inviting Speakers

Once you have made your choices, it is time to formally invite speakers to participate in your program. No matter what information has been exchanged up to this point, a formal letter of invitation gives you a good opportunity to lay out (or repeat) important details for the speaker and what you want back from that person. It generally includes:

- The goal of the session and the overall goal of the course or program
- Date and time of the session
- Who the audience will be and its level of knowledge of the topic
- Who the other speakers will be (particularly if you are inviting a speaker to be on a panel), if this information is available
- A preliminary list of topics you want the speaker to cover
- The honorarium, if any
- Travel and housing details, if applicable
- A request of written confirmation

Tip If you are holding a multisession course, encourage your speakers to stay for the entire event, if your budget allows it. The participants will benefit from the interactions with the speakers and from hearing their comments during the other sessions.

Speaker Confirmation

After the speakers have signed on for your event, you should send them a confirmation letter that reiterates the date and time of their session and the length of their presentation. If available, you may want to attach a preliminary agenda and a summary of the speaker's session that contains its learning objectives. You also may want to attach a list of important dates (e.g., deadlines for submitting an outline for the presentation and PowerPoint slides, making hotel reservations). Remember, it is always a good idea to let speakers know as far in advance as possible what is expected of them.

In this communication, ask speakers to verify contact information, including their degrees and titles, and to supply a biographical sketch. Explain your speaker reimbursement policies and, if speakers are coming from out of town, how they should make their arrangements for travel and hotel accommodations. Find out whether they require wheelchair or walker access to rooms, dais, or lectern and whether they have any special dietary restrictions or requirements or a medical condition of which you need to be aware.

Tip If possible, talk to the speakers' administrative assistants or office managers to make sure your event is on their calendars.

Sample speaker invitation and confirmation letters can be found in the resources at *http://www.hhmi.org/labmanagement*. For more on hammering out the logistical details of speakers' hotel and travel arrangements and presentations, see chapter 8, "Making It Happen."

Tip

You should ask speakers for written permission to make copies of their presentations available to attendees and, if applicable, to be photographed, videotaped, or audiotaped. If you intend to disseminate their materials or presentations (either on the Web or in print), make sure you get permission for this as well.

PREPARING YOUR SPEAKERS

There is widespread agreement about the benefits of giving speakers some guidance about what people in the audience want and need. How much guidance you give is a matter of personal preference and your comfort level with the speakers and their understanding of your milieu. Here is what some training organizers say about the orientation of speakers:

- You can and should be very explicit about what points you want covered. It is a good idea to provide speakers with a written list of the session objectives and suggested talking points, then follow up with a phone call or meet with speakers in person to discuss their talks (also see page 53, "Avoiding Overlap Among Speakers"). Remember though that involving speakers in decisions about session content also makes for a better session.

- Educate your speakers about the audience. For example, let them know the career level of the audience and their degrees and whether they are working in academia or industry.

It's Your Job to Stay Involved

"Don't assume your work is done because you've recruited the best speaker for a given session. You'll need to assume responsibility for assisting your speaker with background on the attendees and the program goals. Plan to review the speaker's program content well in advance."

—Joan Lakoski, University of Pittsburgh School of Medicine

- Review the format of the session with the speakers and make clear to them the amount of time allotted for their presentations.

- Let speakers know if you want them to bring PowerPoint slides or other visual aids (e.g., a speaker on a panel might be embarrassed if the other panelists have PowerPoint slides and he or she does not). It is also a good idea to let speakers know the arrangement of the room where they will be speaking as well as the audiovisual equipment that will be available.

If you intend to duplicate the speakers' PowerPoint slides or other training materials for distribution on-site, set a due date for receipt of these materials before the event, and be sure to follow up with those who are late in submitting their materials.

How far in advance should I ask speakers to submit their presentations?

Views differ on this. You could ask speakers to submit their presentations two to three weeks in advance so you have plenty of time to make copies to hand out. However, in those intervening weeks speakers will have time to make changes to their presentations and, if they do, you will have to decide if you want to rush around on the day of the event making copies of their revised material. An alternative is to set the submission deadline two or three days before the event and make it clear that any changes will not be reflected in the handouts.

The Importance of Science-Speak

For some sessions, you may have speakers from outside the scientific community, probably consultants who are familiar with certain aspects of management but not necessarily in the context of scientific research. In such cases, you will need to spend more time orienting the speaker to your participants' needs, expectations, and frame of reference, so that he or she will have credibility with the target audience.

Make Information Relevant to Scientists

"You have to understand the needs and experiences of audiences composed of scientists at various stages of their careers and find ways to maximize receptiveness to material among listeners who are explicitly trained to question everything. Young scientists are dependent on material being presented in their own language. If it's not immediately apparent how the content relates to their world, much information will be lost. If you use the wrong jargon, you can quickly lose two-thirds of the people in the room."

—Leslie Sprunger, Washington State University

Orienting an Outsider

"When I found a local consultant to address balancing work and life issues, I had her meet with struggling postdocs and faculty before she structured her presentation."

—Joan Lakoski, University of Pittsburgh School of Medicine

"For a session on conflict resolution, I used a specialist who runs a retreat center. She is not a scientist and had never been involved in university research. I invited her to come to the campus before her session. The first time, she met with me; the second time, she met with focus groups of postdocs. During her visits, she learned a great deal about different issues that arise in a lab setting, such as authorship disputes. Her session was highly relevant, and she was outstanding. Now we always educate our speakers about our populations and expectations."

—Melanie Sinche, University of North Carolina–Chapel Hill

Avoiding Overlap Among Speakers

A modest dose of repetition can help audiences absorb and retain the material taught, but you should strive to give all speakers their own distinct "turf" to cover. Experienced training organizers offer the following tips for minimizing overlap:

- For a panel session, schedule a meeting or conference call that involves all the speakers. Ask them to share outlines of their talks and discuss where overlap is important and where to make changes. Ask the speakers to provide you with a final outline of their talks.
- Ask speakers to send their preliminary slide presentations to you several weeks before the training so that you can review the content of their presentations and speakers will have time to make changes if necessary. If speakers are part of a panel, have them send their presentations to each other as well so that everyone can take a look and take steps to minimize (or eliminate) unnecessary overlap.
- For a multisession training event, provide a schedule of all sessions so that speakers can see how their presentations complement other sessions; this will also help to avoid omissions and minimize redundant remarks. Ask staff who are developing the sessions to compare notes to make sure that what a speaker is covering in one session isn't the main focus of another session.

Chapter 7

RECRUITING AND REGISTERING PARTICIPANTS

In This Chapter

Once you have an agenda with speakers, you will need to start publicizing your training event and enrolling the people you want to take it.

ANNOUNCING THE EVENT

If you have the benefit of meeting-management services, the firm you engaged probably takes care of publicity and registration. But if you are on your own, you can use different channels to reach people you want to participate in your training session—membership lists of professional societies, advertisements in scientific journals, posters and flyers on campus and in career development offices, announcements on Web sites, e-mail to students, and word of mouth.

Make sure your brochure, flyer, or other promotional piece contains the critical "what, where, and when" information and gives potential participants a good idea of what they can expect to learn. Include information on how to register, deadlines, registration fees, and whom to contact for more information. (For a discussion of what to ask participants when they register, see page 58, "Registering Participants.") Also be sure to acknowledge the organizations that are sponsoring and contributing to the event.

See the resources at *http://www.hhmi.org/labmanagement* for examples of brochures and registration forms for lab management workshops and courses.

Tip

It is important that participants know that the speaker roster is composed mainly of active, successful scientists. Junior faculty and postdocs want to hear from people who have faced challenges similar to the ones they are facing or will soon face. When you advertise the training, play up the involvement of the scientists.

Some Event-Promotion Strategies

"At ASM we announce our training programs at least six months ahead of time. The Web site for our summer program is up in March with information about the content, deadlines, and all forms. If we tell people early when it will be, where it will be, and why—goals for what we expect them to leave with—then there's enough time for people to make plans."

—Amy Chang, American Society for Microbiology

Some Event-Promotion Strategies

"We post announcements of our Experimental Biology workshops on our Web page and send announcements to all the physiology department chairs, all our awardees, all our trainees via a list server, and all APS members via e-mail from our executive director. We also put out flyers announcing the sessions in the society's office and at the other events we sponsor."

—Melinda Lowy, American Physiological Society

"I have access to lists of all new faculty hired within a specific time period at the University of Cincinnati. I e-mail them and their division director or chair with details about an upcoming training activity. We also have a postdoc e-mail list that's updated monthly."

—Sandra Degen, University of Cincinnati and Cincinnati Children's Research Foundation

"At UCSF we advertised through a number of postdoc and faculty list servers. We also posted large posters on easels, which had a pocket for our brochures as well as many small signs around campus. Good places to put a large easel are in front of cafeterias, the gym, or at building main entrances. When we first put our signs up I was refilling the brochure pocket daily! There is great demand for leadership and management training. We had over 200 people apply for only 100 slots available in our course."

—Samara Reck-Peterson, University of California–San Francisco

TWO OBSTACLES TO ATTENDANCE

The Challenge of Obtaining Release Time

One potential obstacle to attendance is prospective trainees' inability to obtain release time. They may be reluctant to request time off from research, teaching, or clinical responsibilities to attend the training, however helpful it might be. For example, postdoctoral fellows, particularly international postdocs, are often uneasy because their absence from the lab may not be viewed positively by the principal investigator. Here are some ideas for helping beginning scientists obtain release time:

- Keep the university's leadership, including department chairs and senior faculty, informed about the training and how it can assist them in recruiting and retaining top scientific talent.

Tip

Find a high-level advocate who can help you convince your organization's leadership that trainees should be given release time (also see page 11, "Obtaining Buy-In from Your Organization").

- Announce the training date, including any application process, at least three to four months before the event (physician-scientists typically have clinical responsibilities assigned at three-month intervals).

- If there is an application process, consider requiring a letter of nomination so that the principal investigator or department chair can provide confirmation of a commitment to release time.

- Be sure to follow up your event with informative news releases to help attract attention to the excitement and importance of your program, so that this type of professional development activity is recognized as a smart choice.

The Challenge of Childcare

Investigators with young children often find it difficult to commit to a multiday meeting that lacks childcare facilities. Experienced planners have tackled this issue in different ways:

- Offering childcare. A number of scientific societies offer childcare services at their annual conferences, either on-site or in a nearby hotel using licensed, bonded services; convention centers often have connections to these services and can put you in contact with them. Parents must sign waivers; the contracts are between the parents and the childcare service. If your organization's policies allow for this type of service, you have three options: You can let participants pay for the childcare, or you can subsidize it or pay for it entirely. Make sure that you have childcare arrangements in place at the preregistration stage so that you will know how many children will attend.

Attendance at a Multiday Course

"Childcare for a week-long course is a huge problem. Sometimes the people most in need of this training can't come because they don't have the flexibility to be away from home for a week."

—Maryrose Franko, HHMI

- Making referrals for local childcare. For smaller training events, there may not be enough children to make it worthwhile to offer childcare, because of the cost of liability insurance. You can help participants with young children by providing the names of available services at or close to the meeting site, and leave it up to them to make their own arrangements.

- Providing a family lounge. Some organizers provide a "family lounge" where nursing mothers can breastfeed or where parents can have a few moments of quiet time with their children. These spaces are also helpful for participants who bring a spouse, friend, or someone else to look after their children.

- Ending sessions by late afternoon. Many training event organizers do not schedule any sessions past 5 p.m., to allow participants with childcare responsibilities to leave on time.

REGISTERING PARTICIPANTS

Registration Form Basics

You will want to know the following:

- Name (as the participant would like it to appear on a nametag)
- Degree(s)
- Current position (e.g., faculty, instructor, postdoc)
- Affiliation
- Mailing address
- Phone and e-mail addresses

Additional Information You May Want

If you anticipate more applicants than slots, think ahead of time about how you will choose participants and make sure that your application materials ask for data that you will need to make this decision. For example, you will probably want to choose participants according to how much you think they will benefit from the training you are offering. You also might want to ensure diverse representation in terms of experience and points of view. To elicit this type of information, consider including the following items on the registration form:

- Career stage/date started in current position
- Gender
- Citizenship (if you have an international constituency)
- Funding situation
- Research discipline
- Future plans
- Commitments outside of research (e.g., teaching, clinical, or committee responsibilities)

Consider asking for a brief essay on why the applicant needs to take the training and, perhaps, a letter of recommendation. For examples of application and registration materials, see the resources at *http://www.hhmi.org/labmanagement*.

Tip

Regardless of whether you intend to have people apply for the training, it is helpful to obtain information about participants at the time of registration that you can use to tailor the training activities and evaluate their effectiveness after the event.

Q/A

What kinds of items might I include on the application form to help with the selection of applicants?

Organizers of the 2005 BWF-HHMI Course in Scientific Management developed an application/registration form to determine the applicant's need for the training and whether the applicant's career level was consistent with the target audience for the course (i.e., junior faculty with newly established labs and advanced postdocs on the verge of starting a lab). To elicit this information, the application form contained questions about degree(s), current position, and affiliation. Applicants were also asked about the following:

- If a postdoctoral fellow, the number of years they had the position, if they had started applying for a faculty position, and when they anticipated beginning the appointment
- If a faculty member, the number of years they had the position and if they managed their own laboratory and, if so, the number of people in the lab
- The area of research (e.g., basic versus clinical science) and the percentage of time spent on research (if they were physician-scientists). (This question was asked because the course organizers wanted a balance of basic scientists and physician-scientists.)

In addition, they were asked to give three reasons why they should be admitted to the course.

Tip

If you have Web development staff available to help, consider setting up a Web site to collect participants' registrations and post training-related materials. Examples of organizations that use this approach for their training events and meetings include the Office of Postdoctoral Education, University of North Carolina–Chapel Hill (*http://postdocs.unc.edu/ops.htm*); the Office of Academic Career Development, University of Pittsburgh Health Sciences (*http://www.oacd.health.pitt.edu*); and the American Society for Microbiology (*http://www.asm.org*).

When Demand Exceeds Supply

If advance registration for the event exceeds capacity, you have two options: whittle down the registration list or find space (and possibly speakers) to accommodate the overflow. If the second option is not possible, you might try one, or some combination, of the following:

- Choosing participants according to the criteria you have selected (see page 58, "Additional Information You May Want")
- Using a first-come, first-served approach
- Maintaining a waiting list
- Letting overflow registrants know that you will offer the training again

For an open event, be aware that people may not hear about it in time to register and then show up anyway. If you can accommodate these unanticipated participants, you will need to have extra training and registration materials available, know where you can locate extra chairs, and have additional staff on-site, at least for the first few hours, to help with registration.

The Problem of No-Shows

The opposite situation—people who register but don't attend—is also a problem and one that can have budgetary consequences when you pay for meals and rooms that aren't used. To minimize the number of no-shows, you can

- Select participants who really want to attend and will benefit.
- Emphasize to registered participants that they should let you know ahead of time if they cannot attend, so that someone on the waiting list can take their spot. (Most people understand the value of these activities and will not willingly keep someone else from attending.)
- Charge a registration fee (even a small charge acts as a prod to appear).
- Build buy-in from your organization's leadership, such as department chairs, who then make known their expectation that those who register for the training should attend.

Tip

Make sure you plan for some attrition; for example, one planner at an academic institution expects as many as 10 percent of registered participants not to show up.

A Lesson Learned

"At Cincinnati Children's Research Foundation, I've run a six-hour orientation for new faculty on-site, with faculty or colleagues as speakers. The only cost is food. But maybe a third who sign up don't show up. These are usually faculty with clinical responsibilities. For a grant-writing workshop, 130 of 170 registrants showed up, even with the requirement of a small registration fee. In the future, we'll try to communicate better about why it is important to attend and to let us know if they can't."

—Sandra Degen, University of Cincinnati and Cincinnati Children's Research Foundation

Participant Confirmation

Send a letter or e-mail to participants confirming that their registration has been processed. Find out whether participants require wheelchair or walker access or if they have a medical condition of which you need to be aware. If you are planning a meal function, find out whether they have any special dietary restrictions or requirements. If applicable to your event, explain how arrangements for travel and hotel accommodations are being made, including whether participants will be expected to share a room. The more you can tell participants in advance, the better. For example, if they are coming from out of town, tell them about the weather. Information about suggested attire, exercise facilities, and ground transportation is also helpful. Make sure to give them a contact phone number for the facility that their family and friends can use in case of an emergency.

Tip

Consider creating a mailing list server of registered participants. This is an easy and quick way to send reminders and materials that can get participants thinking about course topics. It is also a good way to distribute any pretraining assignments and to gather posttraining feedback. A mailing list server also helps to build a community of people who can share their challenges and solutions to building a successful research career.

What You Might Ask Participants to Bring

If you are including sessions with hands-on activities or a critique-and-feedback structure, you can get a head start when you confirm participants' registration by asking them to bring work products with them or send them in ahead of time. Depending on the topic of the training session, the following are examples of items you might ask participants to prepare in advance:

- An aims statement, a budget, or an entire grant proposal for a session on grant writing
- An introduction to a grant resubmission (the part that addresses the review panel's critique)
- A PowerPoint presentation of their work as practice for speaking to a professional group
- A draft lesson plan for a session on teaching
- Real-life case studies on specific topics, for group problem solving. (You will need to assure trainees that identifying information, such as people's names and institutions, will be removed.)
- An abstract or full manuscript for a session on scholarly writing
- A CV, to obtain advice on finding a job, reappointment, promotion, or tenure

You might also want to ask participants to do some reading ahead of time so that they are prepared for the discussions.

Tip

If you are doing Myers-Briggs Type Indicator or Skillscope 360-degree assessments, alert participants that "homework" needs to be completed before the event and indicate any related submission deadlines.

Chapter 8
MAKING IT HAPPEN

In This Chapter

You have decided on the content of the training and the format for delivering it. You have found a location for your event and have finalized the date. You have identified and secured your speakers and started enrolling trainees. It is now time to focus on the "logistics"—the array of details, from making travel arrangements to making nametags—that can make or break your event.

When considering logistics, try to think beyond what you know has to occur and plan for the unexpected. The audiovisual equipment that doesn't work, the no-show registrants whose meal costs you must cover, and the keynote speaker delayed by bad weather can scuttle your enterprise. This chapter offers some pointers on what you need to do before and during the event to minimize potential problems.

Note: This chapter covers a gamut of logistics-related issues for a multi-session course with speakers and participants coming from out of town. If you are holding an on-campus workshop with local speakers and participants, keep in mind that some of the sections won't be relevant—for example, on overnight accommodations, travel arrangements, hotel contracts, and working with meeting facilities. As with the other chapters in this guide, you should focus on the material that is applicable to the type of event you are planning.

STAYING ORGANIZED

Logistics at a Glance

An important aspect of staying organized and on track is thinking ahead about what you will need to do in terms of logistical arrangements. Here are some pieces of the event-planning puzzle to consider:

Registration.

- Registration process—how participants will register, how registrations will be confirmed, and how you will collect any fees charged

Hotel accommodations and travel arrangements.

- Hotel accommodations and travel arrangements for speakers and participants—who will make them, who will pay, and how arrangements will be confirmed

- Local transportation—availability of parking and public transportation; directions to the event; and how participants will get to and from the hotel, the airport, and the training venue

Meeting room(s), food service, and other requirements.

- Meeting room(s)—how many rooms are needed and at what time, and what room setup and seating capacity are needed
- Food service—the types and timing of meals, beverages, and snacks; who will provide them; and how the clean-up will be handled
- Conference facility—if you are going off-site, and the contract that details the requirements for meeting space, audiovisual equipment, food and beverage, and sleeping rooms
- Entertainment—whether there is a bar or game room where participants can go in the evening, and whether you will be planning any formal entertainment
- Other requirements for participants—such as a place to exercise, check e-mail, and make phone calls, and, possibly, a private room for nursing mothers

Speaker presentations and handouts.

- Presentations—what audiovisual and other equipment are needed, whether speakers will be able to use their own laptops, whether presentations will be audiotaped or videotaped, and whether an audiovisual technician will be required
- Copies of speaker presentations and handouts—how they will be generated and distributed, and how last-minute changes to these materials will be accommodated

On-site management and supplies.

- Supplies and administrative support—what items you will need on-site, and the staff needed to generate nametags and training materials and to be on-site to assist with the event
- Flow of traffic during the training—where people should go during breaks; if a multisession event, how to direct participants from one room to the next

Strategies for Keeping on Track

As you move forward in the planning process, and start to deal more and more with logistical matters, the number of details to keep track of will multiply. The following suggestions will help you stay organized:

- **Set up a system for recordkeeping that works for you.** You will want to develop efficient, accurate methods to keep track of each applicant, registered participant, and speaker; overnight accommoda-

tions; travel arrangements; and services from vendors—all while keeping a running tab on expenses (especially important when collaborating partners are involved). At the outset of the project, decide how you will organize e-mail communications, electronic files, and paper documents. Whatever system you use, if you see that it is not working, quickly replace it with a different one.

- **Keep referring to your timeline.** Remember to consult your timeline frequently to make sure that all the tasks are being handled and that you don't stray too far from your planning deadlines. Issue plenty of reminders to keep to the schedule for tasks on people's to-do lists.

- **Use checklists to help you stay on track.** No matter the size or complexity of your training activity, checklists can remind you of the details that need to be checked at specified intervals before, during, and after the event. (Sample planning checklists can be found in the resources at *http://www.hhmi.org/labmanagement*.)

- **Keep in touch with the people who are helping you**. If a travel office is taking care of travel arrangements for your event, make sure you discuss progress with its staff periodically and compare checklists. Do not assume that you are on the same track. You will also want to be in touch with people in facilities management, food services, and security.

- **Be flexible.** The agenda can be changed even up to the last minute; for example, breaks can be adjusted, speakers can be replaced if need be, rooms can be switched, and so on.

Tip Keep the records you generate for at least a year to help you plan the next event and, possibly, to share with other organizations that are developing training programs in scientific management.

SEVERAL MONTHS BEFORE THE EVENT

As early as possible in the planning process, you will need to give some thought to hotel accommodations and travel arrangements for participants and speakers (if people are coming from out of town), requirements for meeting rooms and food service, and handouts and other materials for the training.

Hotel Accommodations

If your participants and speakers need overnight accommodation, you will probably need to reserve a block of rooms for them at your campus facility or a nearby hotel. Depending on the location of your meeting (e.g., a busy city or resort versus a small town without much traffic), you'll have to secure rooms anywhere from a year to a few months in advance of the event. This is what the hotel will want:

- An estimate of the number of rooms you need and the number of nights each room will be occupied

- A deposit
- A written contract

Also see page 68, "Working with a Hotel or Conference Facility."

Tip Be aware that hotels will often give you free meeting room space, or greatly reduced rentals on meeting room space, if you use a significant number of hotel rooms and nights.

Travel Arrangements

For travel arrangements you have three options, listed in increasing order of the time they will demand of you and the control you'll have. Consider the following:

- **Asking speakers and participants to make their own arrangements.** This option is the least time-consuming choice but carries the highest risk that it will not get done. In addition, if you are offering to reimburse all or partial costs, the people making the reservations may not look for the cheapest available flights.
- **Asking a travel agency either in your own organization or outside to make all travel arrangements**. If you choose this option, make sure that you or someone you know has worked with the agency before. It must be reliable, sensitive to people's needs, and looking for the best deals for you. This option starts off as a middle ground in terms of work for you, but it could easily turn into a lot more work if things go wrong.
- **Calling the airlines directly and making the travel arrangements yourself.** This option gives you the greatest control over what happens. The downside, of course, is that making travel arrangements can swallow a lot of time. If you decide to make the arrangements yourself, be sure to check your organization's travel policies and use them as a guideline.

Tip If you ask speakers and participants to make their own airline reservations, make sure you give them guidance on the best arrival and departure times to avoid rush-hour traffic. Remind them to allow themselves plenty of time to travel between the airport and the training venue.

Meeting Space

As soon as your event is a go, develop a preliminary master agenda that outlines the training sessions and meals and snack breaks for your event. For each, include beginning and ending times for the sessions and breaks, the type of room setup required, and the number of people expected. To do this, you will need to think through the following issues:

- **Number of room(s) needed.** Think about how many rooms you will need at different times, for sessions and for other activities. You may need rooms that accommodate a projection screen and computer for slide presentations. Trust the facility liaison's recommendations on space: If you pack 100 people in a room that "seats 80

comfortably," you will have 100 uncomfortable people. (Also see page 27, "How Large a Group?")

The planning checklists in the resources at *http://www.hhmi.org/labmanagement* can help you sort out your meeting space needs.

- **Room setup requirements**. Certain seating arrangements and room sizes will work best for different sessions—for example, theater-style seating does not work as well as several round tables if you want to have small-group discussions. You may have to choose between U-shaped versus classroom-style seating arrangements, large round or square tables versus several small tables, tables with chairs versus chairs alone, and a head table for speakers versus a podium. Regardless of the setup, make sure you have enough chairs for all participants. This is particularly important for hands-on activities.

Tip

Keep in mind that it takes time to arrange each room as desired and you may not be able to change the setup from one session to another. Changing the room setups may also incur additional charges. So spend some time choosing rooms and their setups. Consider keeping all lecture-format sessions in one room and all small-group sessions in another.

- **Flow of traffic.** Think about how you will get participants from one room to the next—for example, placing signs and having moderators make announcements. Consider using signs with removable arrows.

- **Audiovisual equipment.** Find out what equipment your speakers will bring with them, and what you will need to provide. Typically, speakers will ask for a computer for their PowerPoint presentations, an LCD projector, and a screen. In some cases, speakers also may request an overhead projector and some transparencies and markers. You will need to find out about computer compatibility (e.g., if your keynote speaker brings an Apple laptop, can you project from it, or is your system specific to IBM clones?). Some of the more unusual requests are videotape players and TV monitors, as well as teleconferencing or videoconferencing capabilities.

  Make sure you ask speakers detailed questions and get as much information as possible about what they plan to do (also see chapter 6, "Finding and Working with Speakers").

  Beyond the speakers' requests, consider having the following in each room or on hand: remote controls, microphones (e.g., handheld/portable, aisle, tabletop, lectern), laser pointers, power strips or extension cords for laptops, recording equipment (e.g., audio, video), sound system, and audiovisual technical support.

Tip

Remember to have water and glasses available for the speakers.

The Role of Refreshments

Meals and refreshments enhance informal social interactions and fuel intensive skills-learning sessions. As you fine-tune your agenda, think about the types and timing of breaks and meals. Food is a factor in how people rate the success of a meeting. Participants may interpret a food glitch as evidence of poor planning for other aspects of the event. On the other hand, food service is also one of the biggest event expenses, but smart planning can help you control costs. The goal is enough food to go around without the waste of paying for excessive leftovers. One program planner handles the enough-but-not-too-much dilemma with the following formula: Expect an attrition rate of 10 to 20 percent after registration ends and adjust food numbers accordingly. (Also see page 36, "Tips for Cutting Costs.") Consider decreasing the guarantee for breakfast, which many people skip.

Feeding Frenzy

"The biggest disaster would be to have an insufficient amount of food or coffee. Trust me on this one—running out of food is worse than any dull speaker ever could be."

—Melanie Sinche, University of North Carolina–Chapel Hill

Q&A

What do I need to know about food and beverage charges at a hotel or conference facility?

You will be charged for the amount of food and beverage service you guarantee and the actual number served in excess of that guarantee. Be aware that conference facilities may overset, upon request, by three to five percent over your guarantee. Check with the facility to find out when it needs to receive your final guarantee. Usually it is 72 hours in advance of the food function.

Tip

During the registration process, you will probably have asked attendees whether they have special dietary restrictions or requirements. Regardless, try to include a vegetarian option for every meal. If a participant has a dietary concern that you do not understand, call and ask directly what he or she needs.

WORKING WITH A HOTEL OR CONFERENCE FACILITY

If you are working with a conference facility, share with the facility liaison your preliminary master agenda (including dates and approximate times of your plenary and breakout sessions and meal and break functions) and the number of attendees you expect, and request your preferred dates for the event. (If this event has been offered previously, provide the facility with actual numbers for overall registration, sleeping rooms used, and persons served at the meals and breaks.)

Tip

Some universities have conference coordination offices. Services might include managing registration, arranging for meeting space and refreshments, negotiating a hotel contract, making travel arrangements, and printing marketing materials. The availability of these services and their costs will vary.

Typical Components of a Contract

When you and the facility agree on the dates, the facility's liaison will present a contract for your signature. Major components include:

- ❖ Dates of your event
- ❖ Space reserved for each session—the meeting room assigned for each session *or* the minimum room size (square footage) that each session event will need; the date and time the room will be needed; meeting room rental fees, if any; and room setup
- ❖ The number of sleeping rooms set aside for your group each night. Details include:
  - Single versus double rooms
  - Nightly rates (including tax)
  - Check-in/check-out/cancellation policies
  - The cut-off date at which you can decrease the number of sleeping rooms needed (in case you do not get the response you were hoping for from potential registrants)
  - The cut-off date for your group, at which time any unreserved rooms are released for sale to the general public unless you guarantee to pay for them
  - How reservations will be made—for example, online, toll-free telephone number, directly with hotel, rooming list submitted by meeting organizer
  - The number of complimentary rooms your group will receive based on total sleeping room usage
- ❖ Food and beverage events your group agrees to host, their costs, and the facility's policy regarding cut-off times for modifications in amounts ordered
- ❖ Audiovisual needs:
  - Equipment and technician
  - Audio recording versus video recording, if desired
- ❖ Cancellation/penalty situations if
  - You must cancel the event
  - You do not use your projected number of sleeping rooms
  - The hotel room and food and beverage expenditures fall short of expectations because of fewer attendees

Before you sign the contract, review it carefully. Be very clear about the amount of money you will still owe if you do not meet your minimum guarantees for hotel rooms and food and beverage functions.

Tip

It is possible to purchase event cancellation insurance. If your event is appended to some other event, such as a professional society meeting, you might want to ask the society's decision makers about their approach to such policies and, if they have decided to purchase insurance, make sure your event is included among the covered dates and activities.

Give Detailed Instructions to the Facility Liaison

Approximately three weeks before your event, send detailed instructions to the conference facility. These will include the timing, setup, seating, and audiovisual requirements for the training session rooms; food and beverage selections and prices; event posting and signage; the delivery of training materials; and parking arrangements.

The conference facility liaison will use this information to prepare setup and banquet event orders—written instructions for the facility staff to ensure that your requests are carried out. Review these instructions and speak to the liaison about changes and discrepancies. You may want to meet with the liaison to go over your requirements in person.

Tip

Good communication is key to working successfully with a conference facility. Make sure you inform the facility liaison of any changes in your logistics needs, from changes in the agenda to the number of expected participants.

TRAINING MATERIALS AND GIVEAWAYS

You will have to think about printed materials to distribute, post, or have on hand at the training event. In addition, at many meetings and workshops, organizers provide pens and notepads, tote bags, or books. Tote bags are especially handy if participants are going to be carrying around a lot of material during the event. Order these items well ahead of time. Note that pens and notepads are often complimentary at hotels and conference centers, so check first before you order.

Training Materials: How to Distribute?

Think about how you will distribute the training materials. For instance, will you organize all handouts in one notebook to give to participants when they register or make individual copies of handouts available in the meeting rooms? If you choose the first option, you'll need more time to put the notebooks together and extra people to help with this task, but you'll be sure that everyone gets copies of the handouts. If you choose the latter option, ask yourself the following: Will you be passing them out to participants as they enter the meeting room, placing them on participants' chairs, or placing them on a side table for people to pick up? Giving participants responsibility for picking up handouts raises the risk that some people won't get them. Also, if tables for handouts are positioned near an entry way—as is logical—people tend to cluster there and create a bottleneck that impedes the flow of traffic into the room.

Alternatively, instead of distributing hard copies on-site, you could post the information online for registered attendees to access before the training event (you should still have plenty of copies on hand for those who forget to bring their own). Participants appreciate receiving copies of the speaker presentations so that they can take brief notes and listen instead of trying to copy all the information from the slides. (See page 51, "Preparing Your Speakers," for a discussion on when to ask speakers to submit their materials.)

Reproducing the Training Materials

To avoid time and budget shortfalls, experienced planners offer the following advice:

- ❖ Tell staff at the copy center—whether it is at your institution or an off-site vendor—well in advance what materials you want reproduced, how many copies you need, and when you need them.
- ❖ Ask about cost-saving options, such as lighter cover stock and stapled binding, and whether there are cost breaks for certain amounts of copies.
- ❖ Make sure the originals are ready to copy. Some PowerPoint slides do not print out the way they appear on the screen. Sometimes the background is too dark or symbols and other content go missing in a printed copy. If you want double-sided copies, be sure to insert blank pages where needed.
- ❖ Print a few more copies of each piece than you think you need. Some defective copies usually escape inspection, and people misplace handouts and grab extras for colleagues.
- ❖ Allow time to inspect the copies in advance, preferably at the copy center, so that mistakes can be corrected and unacceptable copies can be replaced.
- ❖ Try to have a photocopier available during the training event. No matter how well you prepare, there will be some last-minute photocopying (e.g., a speaker will bring a handout that you did not know about or an exercise for participants to do that needs to be distributed).

Tip

An important point to remember about photocopying printed materials: Federal laws and regulations may preclude you from photocopying materials unless you have permission or are within the "fair use" rules. (For more information on fair use, see the U.S. Copyright Office explanation at *http://www.copyright.gov/fls/fl102.pdf*.) Also be aware that photocopying materials can be (1) labor-intensive if you do it yourself and (2) costly if a commercial copy center handles the reproduction and collation.

Storing the Materials for Easy Access

Once you have your printed materials to distribute, devise a system to store them so that they will be easy to locate the day of the event. For example, for a multiday event you may want to store your handouts in several boxes, each labeled with the session name, time, and place. Color-coded folders work well for keeping track of materials for multiple sessions in a single day.

TROUBLESHOOTING: DEVELOP A CONTINGENCY PLAN

During the weeks before the event, think carefully about what could go wrong and develop a backup plan. For example:

- *How can I avoid incompatibility between a speaker's presentation and the computer in the meeting room?*

  Before the event, ask the speakers to e-mail you their presentations so that you can load and test them on the computer in the meeting room ahead of time. If a speaker's presentation includes animations, embedded video clips, or other special visual elements, make sure the software runs properly. As a back up, speakers should bring their presentations on a portable storage device.

  In addition, contact speakers before the event to find out if they are bringing revised versions to the event. If so, arrange to meet the speakers as soon as possible at the event to obtain their revised presentations so you can test them for compatibility.

  Remember, you should also have hard copies of presentations ready to photocopy and hand out in case the audiovisual equipment malfunctions or there is an electrical outage.

- *How can I minimize the number of people who register for the training but don't attend, sticking me with food costs I have to guarantee to a caterer in advance?*

  Charging a registration fee might provide an incentive to show up. Also, for an on-site event, reconfirm with registrants and remind them about the session beforehand. Make sure they know they are occupying the place of another interested person. For an off-site event, if you are using a travel agency, obtain copies of all itineraries so you know who has made reservations. Double-check with those who have not.

- *What will I do if a pivotal speaker falls ill shortly before the event or is kept away by travel delays?*

  This is one reason panels are a good option. Because you worked with your speakers prior to the training, discussing in detail who covers what, and you have already received the missing panelist's materials, the remaining panelists have the information they need to cover the extra topics and split the extra time.

  Keynote addresses or single-speaker sessions are more of a problem. You might be able to find a suitable replacement from the group of potential speakers that you developed in the planning phase. Be careful not to offend the replacement speaker, since he or she was obviously not your first choice. Share the talking points for the topics to be covered in the session. If you have already received the original speaker's slides, offer them to the replacement speaker. You may also want to consider whether the session can be skipped this time and rescheduled for another training event.

❖ *What will I do if the food I ordered for an evening or weekend event doesn't show up and the business is closed or the contact person doesn't answer the phone?*

Have staff on hand who know the area and have cars in case they need to dash to a nearby store for food. Have keys for the kitchen area, or at a minimum, whatever you need to make and serve coffee and tea while you're waiting for them to return. Best advice: Double-check your order the day before it is due, and make sure you have a cell phone number (or other surefire way) to reach the contact person.

Persistence and Luck Save the Day

"When I helped Science*'s Next Wave run an 'Interviewing Skills for Scientists' panel, I had four scientist panelists and one human resources panelist. The event was on a Tuesday, and a panelist cancelled the Thursday before. I queried three people from my list of potential speakers; none of them could attend. There was one speaker that I had been playing e-mail tag with for more than a month, and I had finally given up. I decided to try one last time the day before the event. Luckily, my e-mail got into his inbox just as he returned from a trip to Europe, and he accepted right away. I could have done the panel without that fourth scientist, but the last-minute substitute ended up being the stellar panelist of the evening."*

—Lisa Kozlowski, Thomas Jefferson University

THE RUN-UP TO THE EVENT

Prepare Nametags and Tent Cards

All people attending a meeting should wear nametags, including organizers and other staff. Making nametags requires decisions about design and what information to include beyond the person's name. For example, you may want to include title, affiliation, city; category of attendee (e.g., presenters, participants, staff); and numeric or other coding (e.g., Ph.D. or clinician researcher) for evaluation purposes (see chapter 9, "Evaluating the Training"). In addition, make sure the lettering on nametags is legible at a distance of a few feet; this will also limit how much information you can fit in.

Keep in mind that the more information you include, the greater the likelihood that you will get some detail wrong and will have to redo the nametag. Remember to have extra nametags on hand at the meeting because you will be asked to redo a few no matter how careful you are. Consider taking a laptop computer and small printer on site to generate new nametags.

Tent cards are used to identify speakers on stage during a panel session or even at the podium. Make these in advance and make sure they display the name in a way that is clearly visible from the back of the room.

Prepare Welcome Packets

For each participant, include the following:

❖ Nametag in badge holder

❖ Agenda

❖ List of session objectives

- List of speakers and biographies
- List of training participants (and contact information, if desired)
- Copies of speaker presentations and any additional handouts (if you are not distributing them during the sessions)
- Evaluation forms
- Notepad and pen
- Announcement of the next training event (when, where, and how much)
- Floor plan of training facility
- Ground transportation information

Arrange Ground Transportation

If participants are staying at a hotel and the training event is at a different location, you will need to arrange transportation to and from the hotel. To cut down on costs, you may want to rent a minivan or bus that makes the trip several times a day on a given schedule (the schedule will be dictated by your meeting's agenda).

Some planners arrange transportation from the airport at the start of the meeting and back at the end. Other planners coordinate taxi sharing to take participants to airports at the end of the event. It is helpful to reconfirm details at some point during the meeting; people's schedules can change while they're at the event.

A Few Days Before the Event

As the event draws nearer

- Meet with the facility staff who will be on duty during your event to introduce yourself, go over the final agenda, and find out who the "go-to" people are for specific problems that may arise. In particular, you will want to meet with the person who will be loading the speakers' presentations into the computer and go over the session agenda and the order of speakers.
- Find out how the heating or cooling of rooms is handled. For example, if these are on an automatic timer, ask the facility liaison to arrange for the appropriate temperature to be set manually the day of the event.
- Establish clear lines of responsibility for the event with your organization's staff—who is in charge of what. For example, someone with decision-making authority should be accessible for logistics troubleshooting at all times, including breaks between scheduled activities.
- Have a short meeting with your session moderators, organization staff, and others who will be on hand to go over what they are supposed to do. For example, who will staff the registration table? Who

will collect evaluation and speaker reimbursement forms? Who will introduce speakers? Go through the agenda and tell everyone what will be happening. You also may want to walk through the facility to make sure everyone knows where sessions and breaks will take place.

- ❖ Tell colleagues how to reach you or someone you delegate to resolve difficulties such as last-minute requests by speakers or emergencies.

A sample list of what to check and when can be found in the resources at *http://www.hhmi.org/labmanagement*.

Q&A How can I make sure that essential information is consistently and correctly shared with participants?

Distribute to session moderators scripted announcements to be read at the beginning and end of each session. An opening announcement might include the following: a thank you to sponsors, housekeeping details (e.g., location of restrooms and phones, a request to turn off cell phones), and how audience questions will be addressed. A closing announcement could include the location of the next session and a reminder to complete the evaluation form. If you are planning another event, announce the date and place. If you do not have a firm date, direct people to a Web site address.

Avoiding E-mail Distraction

"Participants need to be discouraged from checking their e-mail during the training sessions or running off to do it during breaks, so don't advertise the availability of Internet access in any meeting rooms or common areas. Participants should be focusing on the training and the networking opportunities. E-mail should be checked before and after the day's training—not during breaks, not even at lunch."

—Maryrose Franko, HHMI

THE DAY OF THE EVENT

The following tips can help ensure that the event runs smoothly.

What You Need to Double-Check

On the day of the training event—well before it starts:

- ❖ Conduct a walk through to check that the rooms are set up correctly, with enough chairs for panelists, trainees, and staff, and that the audiovisual equipment requested by speakers is in place and in working order. Also make sure there is water in each meeting room.
- ❖ Test the presentations you loaded in the computer one final time.
- ❖ Check that any food service you requested is set up; any signage you ordered is in place and visible; and sufficient training materials and evaluation forms are available and placed in the correct location.
- ❖ Check that the registration area is correctly signed, set up, and staffed. Set up a message board in the registration area and designate someone to manage it.

Tip Make sure you show up early enough to allow plenty of time to double-check everything. You can't walk in 5 or even 15 minutes before an event starts and expect to be able to deal with any problems you find.

What You Should Have On-Site

Have the following just-in-case items on-site:

- Blank nametags to replace any that are lost or have incorrect information
- Extra nametag holders
- Extra welcome packets
- Copies of materials (or originals to copy) in case some are missing from the handouts you've assembled or are damaged
- Master CD(s) containing all speaker PowerPoint slides, agenda, and other documents related to the training
- Portable storage device (e.g., USB flash drive) for speakers who forget to download presentations from their laptops
- Registration and payment information, if applicable
- Notepads, pencils or pens, dry markers and erasers, flipcharts, appropriate masking tape to affix pages to walls, and tabletop tent cards
- A list of all participants and speakers and their travel schedules and speakers' cell phone numbers to call in case a speaker does not show up
- Essential phone numbers (e.g., vendors, taxis, airports, hospital) available to staff

For sample checklists of what to double-check and have on-site, see the resources at *http://www.hhmi.org/labmanagement*.

What You Can Do to Manage the Event Better

During the event

- Be realistic about what you should be doing during the event. Chances are that one of your main responsibilities will be to attend the session(s) and interact with participants. Therefore, you should not be the problem solver unless there is an emergency. For example, do not collect evaluation, reimbursement, or any other forms during the training; refer participants to the staff person who has this responsibility.
- Carry a walkie-talkie or a cell phone (but remember to set it on "meeting mode"). Emergencies happen, and you may need to address problems while you're in transit or without access to a telephone.

Tip With a multiday event, consider having a short (30-minute maximum) debriefing with speakers and staff to identify any adjustments that need to be made for the following day. This enables everyone to relax, regroup, and feel better prepared.

Q&A How can I keep speakers to their allotted times so that enough time remains for Q&A?

Use a timer that gives them a signal when it is time to wrap up. Make sure the speakers know how much time they have remaining when the signal goes off (five minutes remaining is a good rule of thumb). A low-tech solution might be to use a hand signal to indicate the number of minutes remaining or have the session moderator move slowly toward the podium.

AFTER THE TRAINING EVENT

The adjournment of the training activity does not mark the end of your responsibilities. You still have to collect, process, or create the following:

- ❖ Thank you's to speakers and sponsors
- ❖ Thank you's to participants
- ❖ Evaluation forms (if methods other than exit surveys are used) to compile an evaluation summary of the event
- ❖ Extra training materials (e.g., recycle, destroy, return to sponsoring organizations)
- ❖ Speaker honoraria and expense reimbursement
- ❖ Hotel and training facility bills
- ❖ Transcript or other written, audio, or video record(s) of the event
- ❖ Photographs
- ❖ A meeting history for future events: Update the master schedule to include actual numbers at each session; document the actual number of hotel rooms used each day.

Finally, there is the debriefing. Set up a time to go over the training evaluations and discuss with staff what did or did not work and start to think about how to apply what you've learned to the next training event (see page 91, "Continuous Improvement: The Feedback Loop in Operation").

Tip Consider sending out a CD containing the course material to your participants after the event. In addition to the speakers' slides, you can include any additional material the speakers brought. (Make sure you have permission from the copyright owner for any copyrighted material.)

Chapter 9
EVALUATING THE TRAINING

In This Chapter

After months of planning, the training event is now over. You have a sense of how it went, but you need to know how the participants think it went—and how it could be improved. This chapter rewinds back to the time when, as part of the early planning process, you and your fellow organizers began to discuss postevent feedback and weighed your options for how and when to conduct an evaluation. It will help you find answers to the following questions:

- What should I budget for evaluation? How can I keep costs down?
- Where can I find help with the evaluation? Should I hire a consultant?
- What should I evaluate? How will I know if the training has been a success?
- How should I gather information for the evaluation?
- When should I conduct the evaluation?
- How do I analyze the data?
- How will I apply what I've learned?

Note that the chapter is not intended to be a comprehensive treatment of this complex subject. The discussions that follow are meant only to highlight some of the issues to consider as you plan the evaluation of your event and to offer some pointers from people who have conducted and evaluated training programs in scientific management. Regardless of whether you are holding a small workshop or a multisession course, you should conduct a thoughtful evaluation and build on the results to plan your next event.

WHAT TO BUDGET FOR EVALUATION

Like everything else related to scientific management training, costs can vary wildly depending on the evaluation expertise involved, the size of the training program, and the method used to conduct the evaluation. For example, it could cost anywhere from $3,000 to $10,000 to hire a consultant to evaluate a workshop or a single-day training program. On the other hand, you could design and conduct the evaluation yourself, which means that you would need to pay for only photocopying (or access to e-survey sites) and staff time.

What are some strategies for keeping evaluation costs down?

One way would be to handle some of the tasks yourself. For example, you could collect and enter the data but have an evaluation consultant set up the data collection file (to make sure that it is in a format the consultant knows and can work with efficiently) and analyze and synthesize the outcomes. Another cost-saving approach would be for a consultant to construct the survey, collect the data, and format the outcomes (e.g., into charts and graphs) and for you to take responsibility for synthesizing the findings into "lessons learned." Yet another approach would be to take advantage of Web-based survey tools.

WHERE TO FIND EVALUATION EXPERTISE

Depending on your comfort level with designing and conducting an evaluation and interpreting the results, you probably will want to get help with some—or all—parts of the process. Here are some ideas on where to go.

Finding Low-Cost Evaluation Expertise

Your own university or professional society is an excellent place to look for no- or low-cost assistance with the evaluation process. Human resources staff, for example, are often trained in evaluation tools and techniques. If you are at a professional society, you might be able to recruit program planning staff not directly involved in developing your training event who could advise you or perhaps conduct the evaluation for you.

Making Do on a Tight Budget

"We solicit feedback on the events we hold, but we develop our own evaluations and mechanisms for interpreting the feedback. It's as objective as we can manage on a minimal budget."

—Crispin Taylor, American Society of Plant Biologists

Departments of medical education within medical schools are another potential source of expertise, as are the "internal learning departments" or centers at academic institutions, which can go by many names, such as training and development, teaching and learning, organizational development, or performance improvement. Similarly, graduate students of business schools, psychology departments, and statistics departments might be happy to help you design, tabulate, and analyze a course assessment for credit, for a low fee, or simply for the experience. Don't be timid about approaching faculty members as well; you may find that they would be willing to lend their expertise to an endeavor that benefits their institution or helps fulfill an academic service obligation.

Hiring an Evaluation Consultant

The alternative to volunteer or low-cost assistance is the hired specialist. Figure 9.1 lists some pros and cons.

Figure 9.1. Pros and cons of hiring an evaluation consultant

Pros	Cons
Is not invested in the outcomes and thus more likely to be objective Is more likely to get the project done on time and within budget Is likely to have relevant expertise from having done similar projects	Can be expensive May not be familiar with the subject matter (e.g., academia, the laboratory research environment), which can hinder understanding of the goals or interpretation of responses May have a steep learning curve regarding the organization's culture

If you decide to engage a specialist, a good place to start is to ask colleagues for recommendations. Be sure to

- ❖ Know what type of work is needed.
- ❖ Look for solid experience, especially for projects similar to yours.
- ❖ Interview prospective candidates.
- ❖ Ask for sample reports.
- ❖ Check references.

Working with an Evaluation Consultant

Regardless of whether you rely on help from your university's or society's staff or from an outside consultant, you will need to provide as much guidance as possible about what you need. For example, if you want the speakers to be evaluated for content delivered but not for presentation style, you have to say so. You will get the best results if you

- ❖ Start early—rush jobs rarely yield high-quality work.
- ❖ Are explicit about your expectations, timeline, and budget.
- ❖ Communicate clearly and regularly.
- ❖ Are responsive to the consultant's queries.
- ❖ Stay involved.

Once you know who will be doing the evaluation, you can proceed to other critical decisions such as what to evaluate, the instrument(s) to use, and when to conduct the evaluation.

WHAT TO EVALUATE

Feedback from Trainees

The purpose of an evaluation exercise is to gauge how well you met your objectives, which should revolve around the information and skills you want to impart (see page 4, "Setting Goals and Objectives"). The best way to determine whether you have met your objectives is to ask the trainees. You want to collect and analyze their views on matters of both style and substance—such as quality of speakers, session length, session format, and topics covered—the value of the event, and its individual components.

Feedback from Speakers

Although the trainees are the primary focus of your evaluation, you might want to solicit comments from the speakers as well to improve the environment for them at your next event, thereby increasing the odds that those you would like back will accept your invitation. For this purpose, you can put together a speaker-specific questionnaire that gives them an opportunity to describe what worked well for them and what they would change. Don't forget to also ask them about their satisfaction with accommodations, room set up, and other logistics matters. Finally, if any of the speakers attended sessions other than their own, they may have program-related insights to reveal through the same evaluation instrument you give the participants.

Data for Stakeholders and Funders

When you develop the evaluation, you also should be mindful of what your stakeholders (e.g., your organization's leadership, collaborating partners) want. How detailed do they want the evaluation to be? What kind of format do they want to see? If you plan to seek external funding for future events, what kind of data do you need to strengthen your proposal?

Once you have decided what you want to know from participants and, possibly, speakers, and what your stakeholders want to see, you will be ready to design the evaluation.

DESIGNING THE EVALUATION INSTRUMENT

Designing an evaluation questionnaire is both an art and a science, with some trial and error along the way. It requires an understanding of how to frame questions to elicit specific responses. Responses to some questions can be easily quantified (e.g., "How do you rate the overall training in terms of relevance to your role as a scientific manager, using a scale from 1 to 5?"). Others are more challenging to encapsulate with numbers (e.g., "How did the training change how you manage and organize your lab?"). Because quantitative and qualitative data deliver different insights, both approaches are useful to include in an evaluation. The differences in these two approaches and examples of both are discussed next.

Quantitative Versus Qualitative Data

Quantitative data are finite, clearly delineated, countable numbers. Examples are yes/no answers, numerical rankings, or range-of-quality scales. These measures allow you to generate graphs and figures that tell your story with visuals. They also make it easier to compare sessions from year to year since you have actual numbers. Another advantage of quantitative data is that most people will answer the questions. If you ask only for open-ended feedback, fewer people are likely to respond.

An example of a quantifiable probe is "This session helped me learn how to write a letter of application for a faculty position" accompanied by a four- or five-point scale, for example:

- ❖ Disagree, Somewhat Disagree, Somewhat Agree, Agree
- ❖ A scale from 1 to 5, with 1 being Strongly Disagree and 5 being Strongly Agree

Note that the range-of-scale measure will give you important shadings of satisfaction that cannot be captured with a simple yes/no response format. However, interpreting these and other quantifiable measures correctly will likely require hiring an evaluation consultant or asking someone at your organization who is experienced in statistical analysis to help with this task.

Qualitative data (e.g., comments drawn from open-ended text boxes and interviews) are less concrete and often resist packaging in tidy numerical form. This can make them harder and more time-consuming to collate, yet they can deliver insights unobtainable through questions that yield quantitative data. Verbatim comments can not only underscore observations drawn from the quantitative data but also add punch to brochures and final reports. Qualitative data can also spark new ideas for subsequent training events. Most evaluation instruments ask questions that will produce at least some qualitative responses. Keep in mind that the use of open-ended questions and comment boxes is more feasible with small numbers of participants than with large groups.

What are some examples of questions that elicit qualitative data?

One program planner finds the following questions productive:

- ❖ What did you find most helpful about today's program?
- ❖ What, if anything, would you change about the program?
- ❖ What topics would you like to see offered in future workshops?

Tips for Developing an Effective Evaluation Questionnaire

The evaluation questions should be linked to the goals and objectives of the training event. Consider using a mixture of short answer, multiple choice, and open-ended comment boxes in the questionnaire (see appendix 4 for an example of a mixed-format form used for the 2005 BWF-HHMI Course in Scientific Management). Evaluation pros offer some additional advice on designing the questionnaire:

- **Don't ask the question if you won't do something with the data.** Stick to questions that will help you determine whether you met your objectives. Avoid fishing expeditions—asking questions about things over which you have no control serves no purpose.
- **Steer clear of questions about intangibles.** An example of such a question is "How would you rate the university's commitment to training?" Evaluation is all about meeting your objectives; direct your questions to those specific aims.
- **Avoid ambiguous wording.** An example is "Did this lecture (workshop, session, etc.) meet your expectations?" If you don't know what the respondents' expectations were before the training, you can't evaluate their responses.
- **Ask questions that get at the root of purported benefit.** For example, you might ask participants to explain why they think they changed a particular behavior entirely because of a specific training session—why they could not or would not have made the change otherwise.
- **Keep the questions short and to the point.** Remember that no one really likes to fill out surveys, and if time and finances are tight, minimize the number of open-ended text boxes that elicit qualitative data.
- **Be aware of question bias.** Avoid framing the question to lead to the answer you want. For example, by asking "How do you think this workshop will improve your skills?" respondents are being prompted to talk only about positives. A better way to phrase the question might be "Please describe which of your skills have been improved by taking this workshop." The answer may require more work to analyze, but you will get a better idea of how respondents view the training and it may help them crystallize their own opinions about how well their time was spent.

Even if you have obtained a suitable survey from a colleague or other source, it is a good idea to step back and consider whether it might benefit from tailoring to the specifics of your situation. Remember that whether or not a question is poorly framed depends on the objective of the question (see figure 9.2 for examples).

Figure 9.2. Framing the questions

Objective	Poorly Framed Question	Revised Question	Explanation of the Revision
You want to identify the most important topics in the course.	List the three best topics in the course.	Which topics were most useful to you? (Provide a list of topic names with room to rank order them.)	The initial question was too general—people may not remember the topics and they could use their own names for the topics, which you might not be able to identify. You should ask them to rank order the topics; otherwise, it will be difficult to analyze the data.
You want to know if people will change how they respond to a situation after taking the training.	Do you think you have improved your scientific management skills?	Please estimate how the information learned in the workshop will change how you will manage people and situations: __ Significantly change __ Moderately change __ No change Comments:	Using the verb "change" rather than "improve" reduced the bias toward a positive response. The yes/no response was replaced with an opportunity for the participant to provide more thoughtful commentary.
You want to know how to improve the training.	What was the weakest part of the workshop?	How can we improve or enhance this kind of training in the future?	The initial question lent itself to negative bias. In addition, the question was too general: If the respondent doesn't specify why the session was weak, you won't know how to improve it.
You want to know if people thought the training was worthwhile enough to recommend to a friend.	What did you think about the workshop?	Would you recommend the workshop to a colleague? __Yes __No	The initial question was too broad, making responses difficult to analyze. Be direct: If you want to know whether people thought highly enough of the training to recommend it, then ask them that.

HOW TO GATHER EVALUATION INFORMATION

You can collect comments on paper, in person, through e-mail, or via Web-based tools, or some combination of these methods. Each has its proponents.

On Paper

A form completed by hand has its advantages. You get a much higher completion rate because you can insist upon having the form returned to you immediately following the session. In fact, some event organizers tell participants that they cannot submit reimbursement forms without handing in the evaluation. Another advantage to having the form submitted immediately after the session is that you can collect participants' feedback before they have a chance to talk with each other, thereby making it possible for you to collect a broader range of opinions. The main problem with handwritten forms, however, is that it is extremely labor-intensive to get the data entered into a format conducive to analysis. In addition, you are depending on the person entering the data to do it accurately.

Q&A

How can participants maintain their anonymity on an evaluation questionnaire?

Although anonymous surveys are useful because they allow respondents to be candid, it is also important to tie the feedback with demographic information. For their courses, BWF and HHMI solved this problem by assigning participants a number that they wrote on their evaluation forms. The number correlated with a set of demographic data (e.g., M.D./Ph.D. versus Ph.D.), but the connection to the person was removed early in the process. That way it was easy to see which sessions were most useful to which group.

In Person

In addition to written surveys, you may want to interview participants before they leave—either one-on-one or in a focus group. If you hold a focus group, make sure that the participants are representative of the entire group of trainees. One disadvantage to a focus group is that it can be expensive and time-consuming. For example, you may need to compensate participants for taking an extra one to two hours after the training is over to provide their feedback. And if the focus group is led by a consultant, the price tag will rise even more. You will also need to designate someone to take notes during the session and to synthesize participants' comments. Another potential disadvantage to focus groups (versus one-on-one interviews led by a third-party consultant) is that the participants may be reluctant to say anything negative about the training event in front of the organizers. Even if they do not have negative comments, chances are without anonymity they will not be as honest as you would like them to be. However, the back-and-forth brainstorming that occurs in a focus group can give you valuable insights into what did and did not work in the training.

Through E-mail

Some experienced program planners rely almost exclusively on e-mail, finding that it gives them the best response rate. After the training, follow up with a short e-mail evaluation form that captures the key points. Because participants can respond easily and quickly, in their own time, they are more likely to complete the evaluation. Another advantage is that electronic surveys eliminate the common problem of indecipherable handwriting in comment fields. One drawback to e-mail surveys is that it is difficult for respondents to maintain anonymity. Another difficulty is that tabulating the data can be time-consuming if you have a lot of participants.

Via a Web-Based Survey

Some program planners use electronic surveys delivered over the Web. These can be a cost saver in terms of minimizing the labor required to enter data by hand, and they can also be convenient. For example, you can send out automatic e-mail reminders to increase the response rate. Online registration allows you to verify your e-mail list by sending information to the e-mail address that registrants submit. It also reduces the likelihood of falsified information (see figure 9.3 for names of some Web-based evaluation tools).

Tip

To conduct e-mail surveys or use online evaluation tools, you will need the participants' e-mail addresses. To obtain this information, you can require it at registration or use an online registration system.

Advantages of E-survey Tools

"It's worth investing the time and energy to identify e-survey services. With these sites you can expedite data entry, export data into Excel, and prepare summary reports much more efficiently."

—Krystyna Isaacs, BWF-HHMI Course in Scientific Management

There are downsides to using Web-based surveys, however. First, because you will probably not be able to administer them immediately after the session, responses will drop off significantly. Second, it is unwise to leave responses to the evaluation stored on the host Web site. Most e-survey services offer an export mechanism by which you can download your data onto your own computer. If the service does not offer this feature, you should look for another service. Another drawback when using Web-based surveys is that you usually cannot format the data or comment box statements. If the service provides you with the raw data, you can reformat it, but it may be worth your time when you select the service to review the service's automatic survey reports and to select a service that provides output reports that meet your needs.

WHEN TO EVALUATE

The optimal timing for your evaluation activities is determined by many factors, but the primary ones are (1) what you want to know and (2) what resources are available to you.

The following section discusses the pluses and minuses of obtaining feedback from participants immediately after the event and a few or several weeks after it.

Gathering feedback at the event is generally the most cost-effective strategy, but, depending on the type of information you want to obtain, it may be worth postponing your evaluation or even carrying out several of them at different times. Also keep in mind that response rates for surveys depend on the type of survey—for example, e-mail versus telephone versus in person.

Figure 9.3. Resources for evaluation

Books

- Frechtling, Joy. *The 2002 User-Friendly Handbook for Project Evaluation.* Arlington, VA: Directorate for Education and Human Resources, Division of Research, Evaluation, and Communication, National Science Foundation, 2002, *http://www.nsf.gov/pubs/2002/nsf02057/start.htm*.
- Kirkpatrick, Donald L. *Evaluating Training Programs.* 2nd ed. San Francisco, CA: Berrett-Koehler Publishers, 1998.
- Phillips, Jack. *Handbook of Training Evaluation and Measurement Methods.* 3rd ed. Houston, TX: Gulf Professional Publishing, 1997.
- Triola, Mario. *Elementary Statistics Using Excel.* 2nd ed. Boston, MA: Addison Wesley, 2003.

Literature Review and a Refresher on Evaluation Basics

- American Society for Training and Development, *http://www.astd.org.*
- International Society for Performance Improvement, *http://www.ispi.org.*

Web-Based Evaluation Tools

- American Physiological Society's resources for planning a program evaluation, *http://www.the-aps.org/education/promote/promote.html*.
- CreateSurvey, *http://www.createsurvey.com*.
- SurveyMonkey.com, *http://www.surveymonkey.com*.
- WebSurveyor, *http://www.websurveyor.com/gateway.asp*.
- Zoomerang, *http://www.zoomerang.com*.

Establishing a Baseline: The Pretest

Do you want to look for a change in attitude, knowledge, or behavior? If so, you will need some sort of pretest—a survey conducted before the training and a method of administering it, to establish a baseline—as well as a postevent evaluation tool. A good way to boost the response rate is to tie the pretest to registration. Knowing that trainees' feedback might be influenced by their experiences or personal characteristics, you might also want to collect demographic information during registration. Typically, this would be data on gender, degree, professional level, and so on. (For ideas about what to ask for on the registration form, see chapter 7, "Recruiting and Registering Participants.")

Immediate Impressions: The Exit Survey

The exit survey is a mainstay of evaluation because it is so easy to generate and copy the forms and to distribute to participants. Another benefit is the high response rate, especially if you require participants to submit the form before leaving the meeting room. Yet another benefit is the ability to capture impressions while they're fresh. On the downside, exit surveys entail considerable time commitment on the coding and analysis end. Another drawback is that participants are often energized after a training session and this could lead to a positive bias in favor of the event.

Effective exit surveys are characterized by brevity. Typically, they tend to be only one page because if you want people to finish a survey before they leave the room, you have to keep the form short *or* carve out precious time from a packed schedule for completion of a longer form. If you plan to use an exit survey, be prepared to exercise restraint; a short evaluation instrument calls for discipline during the design phase.

Exit surveys can be designed to cover an entire multisession event or a specific session, or you can develop a generic exit survey to use for all sessions. For the 2005 BWF-HHMI Course in Scientific Management, organizers used the same survey for all similarly formatted sessions and another for the course as a whole (see appendix 4 for the course summary evaluation form).

How can I get participants to complete their evaluation forms?

It helps if participants know from the start what is expected of them in terms of completing the evaluation:

- At the first full-group gathering, they can be given instructions about exit surveys, or a sample survey form can be included in the welcome packet.
- Staff can remind participants to turn in a completed survey when they leave the room and station themselves at the door to receive the completed forms (and issue another reminder about the survey to empty-handed participants).
- You might want to make return of a filled-in survey a ticket to the next meal or the next session.

Time to Ponder: A Week-Long Delay

Response rates to evaluation instruments tend to fall off with distance from the event, but sometimes there is little choice. On the bright side, what you lose in numbers you may gain in thoughtful evaluation, when responders have had some time to reflect on the training—its value, what they appreciated most, what was disappointing, and concrete recommendations for what to do differently.

Increasing the Response Rate

"There's some value in having evaluations done a week after the activity, when participants have had time to think about it. In those cases, it helps to increase the response rate to let people know why you need the data."

—Sandra Degen, University of Cincinnati and Cincinnati Children's Research Foundation

A Longer Perspective: Measuring Change

If you want to identify a change in participants' attitudes or behavior, for example, related to a new awareness of their personality type as a result of a session on the Myers-Briggs Type Indicator, you need (1) a baseline of where participants started and (2) time for them to absorb the information and begin to apply it. How much time is enough time to allow new lessons to take hold? That depends in part on what the lesson is, but even so, opinions on this question vary considerably. A starting point may be at least six months out.

Measuring change can be costly. You need to decide whether it is worth the expense in time and dollars to keep track of participants, design a tool to measure change, pester participants politely to ensure a response rate that has statistical validity, and analyze the findings. Another challenge is that participants may move, so you will need mechanisms to keep track of their contact information.

For the 2002 BWF-HHMI Course in Scientific Management, the organizers conducted evaluations at three time points: immediately after each session and the entire course, at six months, and a year later. They found very little difference between responses immediately after the course and at six months and at one year later.

ANALYZING THE DATA

Experienced evaluators note common pitfalls to avoid in analysis:

- Keep the coding straight. You will want to link demographic data obtained at registration to data collected on survey forms. If there are discrepancies between the two, it may be that a handwritten response (e.g., M/F, degree) is more accurate than the registration data, which could have been entered by a third person rather than the registrant.

- Watch out for insufficient response rate and biased responders—a situation where only those who really liked or hated the training were motivated to fill out the evaluation form. (Making return of exit surveys mandatory sidesteps this problem.)

- ❖ Plan how you will treat data that are missing as a result of unanswered questions and empty comment boxes. This will significantly affect data analysis.
- ❖ Resist the temptation to overanalyze your data. Excessive number crunching is time-consuming and costly and rarely produces a significant return on the investment. "Eye-balling" the data is usually enough to tell you whether a session achieved its goals.
- ❖ Look at the data with healthy skepticism. Respondents want you to think that they learned something after exposure to your training—and they may believe it—but you want to be able to sift through their responses to confirm (or refute) that impression.

REPORTING THE DATA AND APPLYING WHAT YOU HAVE LEARNED

What do you plan to do with the information gleaned from your evaluation? If it is going to sit on a shelf, you will not want to spend too much time or effort on analyzing the data and generating a report. But if you expect to reprise the event or something like it regularly, a report can be useful in identifying strengths to retain and weaknesses to correct.

The Evaluation Report

This report is the foundation for any changes you choose to make in the next iteration of your training. It should tell you what worked well and not so well and give you a good idea of why. When you need to justify revisions in the training to your organization's leadership, the findings in your report provide a solid rationale. Another use of the report may be to demonstrate success to a current or potential funder.

For usefulness and user-friendliness, it is hard to beat an evaluation report that features a "lessons learned" section and an executive summary that highlights the main findings with bulleted lists (and subheads, if the findings are extensive). When a graph makes the point well, it can break up the text to good effect.

If you use an evaluation consultant, make sure you discuss the format in which you want the findings reported (e.g., level of detail, amount of narrative, charts and graphs). Because outside evaluators are not invested in outcomes, they often can give more objective analysis than a training session organizer. If the outcomes are not optimal, it is important that the analysis be accurate but also tactful.

Continuous Improvement: The Feedback Loop in Operation

If you have prepared carefully, your event is unlikely to disappoint, but some elements are always bigger crowd pleasers than others. Organizers want to know where to make improvements (e.g., to alter a session format or replace a speaker). In this quest, they use feedback to guide revisions, and the

revised event elicits a new round of comments from new participants, which continue to direct adjustments of different aspects of the event, producing a process of continuous improvement based on evaluation.

When you analyze the feedback data, keep in mind that if a session garners bad reviews, it does not necessarily mean that you should not offer the session again. Instead, adjust the content or replace the speaker. In addition, sometimes participants may not think a session was valuable because of their career stage, but you know that the information will be valuable to them in the future.

Using the Evaluation Results

"Our program is being tweaked all the time in response to feedback, so participants know the organizers are listening, and we point out how we've made changes in response to comments."

—Amy Chang, American Society for Microbiology

"As a result of evaluation from the 2002 course, we tried to give more opportunities for informal interaction among participants. They told us that discussions over dinner and at breaks were as valuable as formal sessions, and they wished they'd had more time to 'hang out.' They also told us that they really valued what they learned in the Q&As, so we made sure that we included more time for those in each session."

—Laura Bonetta, BWF-HHMI Course in Scientific Management

SHARING WHAT YOU HAVE LEARNED

If your event was like most, your evaluation findings will demonstrate that things generally went well. Now is the time to step back, appreciate the fruits of your labors, and congratulate everyone involved—yourself, your planning group, and others who provided assistance, including the speakers. The participants, too, deserve recognition for committing the time to learn how to approach their roles as scientists in a new light. Undoubtedly, you and your colleagues also came away with useful information. This is an occasion for celebration.

Having planned ahead for a thorough evaluation, you have a great deal of data to share with others, including the people at your organization who championed this new professional development resource. Plan to draft a brief report with some pertinent feedback and illustrate this text with quotes from your attendees. You might want to consider having a news release developed on the outcome of your training program or have a photographer attend the training to capture some images for your Web site or other relevant materials. A great way to thank your supporters is to share your success.

APPENDIXES

Appendix I

BUDGET PLANNING
Sample Checklist

REVENUE

( ) Institution contribution $_____

( ) Registration fees (X people x $X per person) $_____

( ) Other $_____

Total projected revenue: $_____

EXPENSES

Precourse expenses:

( ) Planning committee travel $_____

( ) Planning committee lodging $_____

( ) Promotional pieces $_____

( ) Office supplies $_____

( ) Clerical assistance $_____

( ) Other $_____

Subtotal: $_____

Evaluation expenses:

( ) Pretraining needs assessment $_____

( ) Posttraining evaluation $_____

( ) Other $_____

Subtotal: $_____

Course venue expenses:

( ) Meeting rooms $_____

( ) Storage room $_____

( ) Sleeping rooms (plus tax) $_____

( ) Audiovisual equipment* $_____

( ) Audio/video recording* $_____

( ) Transcription service $_____
( ) Other $_____
* Include here or budget separately

Subtotal: $_____

Food and entertainment expenses:
( ) Meals* $_____
( ) Refreshment breaks* $_____
( ) Receptions* $_____
( ) Entertainment $_____
( ) Other $_____
*List functions individually

Subtotal: $_____

Speaker and facilitator expenses:
( ) Honoraria $_____
( ) Sleeping rooms $_____
( ) Travel:
    ( ) Airline and train fares $_____
    ( ) Car rentals $_____
    ( ) Taxis $_____
    ( ) Shuttle buses $_____
    ( ) Parking $_____
( ) Other $_____

Subtotal: $_____

Course participant expenses:
( ) Sleeping rooms $_____
( ) Travel:
    ( ) Airline and train fares $_____
    ( ) Car rentals $_____
    ( ) Taxis $_____
    ( ) Shuttle buses $_____
    ( ) Parking $_____
( ) Other $_____

Subtotal: $_____

Staff expenses:

( ) Sleeping rooms $_____

( ) Travel:

- ( ) Airline and train fares $_____
- ( ) Car rentals $_____
- ( ) Taxis $_____
- ( ) Shuttle buses $_____
- ( ) Parking $_____

( ) Resource materials $_____

( ) Shipping of materials $_____

( ) Courier service $_____

( ) Gratuities $_____

( ) Other $_____

Subtotal: $_____

Course notebook, workbook, handouts:*

( ) Binders $_____

( ) Folders $_____

( ) Printing/copying $_____

( ) Other $_____

*Evaluation forms can be included here or in a separate budget for evaluation

Subtotal: $_____

Meeting supplies:

( ) Notepads, pens, and pencils $_____

( ) Signage, posters $_____

( ) Nametags, tent cards $_____

( ) Prizes or awards $_____

( ) Other $_____

Subtotal: $_____

Audiovisual equipment:

( ) Sound system $_____
( ) Podium, table microphones $_____
( ) Lavaliere microphone $_____
( ) Projection screen $_____
( ) LCD projector $_____
( ) Laser pointer $_____
( ) Video/audio recording $_____
( ) Overhead projector $_____
( ) Flip charts $_____
( ) Audiovisual technician $_____
( ) Other $_____

Subtotal: $_____

Miscellaneous:

( ) Telephone/fax expenses $_____
( ) Web site development $_____
( ) Childcare $_____
( ) Photographer $_____
( ) Other $_____

Subtotal: $_____

Total projected expenses: $_____

REVENUE LESS EXPENSES $_____

Appendix 2

THE BWF-HHMI COURSES IN SCIENTIFIC MANAGEMENT
A Case Study

In 2002 and 2005, the Burroughs Wellcome Fund (BWF) and the Howard Hughes Medical Institute (HHMI) sponsored a course in scientific management for postdoctoral fellows and newly appointed faculty who had received grants from these organizations. Both courses were held at HHMI headquarters in Chevy Chase, Maryland. This case study explains why and how the courses were developed, illustrates the role of evaluation in shaping course content and format, and gives an overview of the sessions at the 2005 course.

A full version of the case study, with session summaries and evaluation outcomes for the 2002 course as well as detailed content outlines and supplementary readings for the 2005 course, can be found in the resources at *http://www.hhmi.org/labmanagement*.

WHY HAVE A COURSE IN SCIENTIFIC MANAGEMENT?

The 2002 course was conceived following discussions between BWF and HHMI staff and scientists who had received research training or career development grants from the two organizations and expressed a need for additional training in laboratory management to successfully launch their research programs. The course received such an enthusiastic response that BWF and HHMI decided to hold a slightly revised version in 2005 that reflected feedback from participants of the first course.

The courses had three goals. First, they aimed to provide participants with laboratory management skills that would help them rapidly establish well-run, productive laboratories. Second, they aimed to provide participants with an opportunity to develop networks with their peers and more established scientists. Third, they sought to point out the need for early career training in laboratory management to universities, professional societies, and postdoctoral associations and provide these institutions with an example of how they might design their own courses in laboratory management.

To better accomplish the third goal, as part of the development of the 2005 course, BWF and HHMI established the Partners in Scientific Management Program. In this program, academic institutions and professional societies interested in improving the training of early-career scientists were invited to apply to help plan the 2005 course and attend and critique the course itself. In exchange, applicants committed to carrying out scientific management events suitable for their own constituencies. The organizations that were selected to participate in the Partners Program are listed on page xiii.

IDENTIFYING TOPICS FOR THE 2002 COURSE

The 2002 course was developed over a two-and-a-half-year period by staff from BWF and HHMI, with assistance from the American Association for the Advancement of Science (AAAS). The first year was spent identifying the topics to be covered. The course developers convened two focus groups mainly composed of BWF and HHMI grant recipients, including advanced postdocs and newly appointed faculty and physician and nonphysician scientists, that identified a diverse range of career development needs that coalesced under the general theme of scientific management. To further refine the list of topics, the course developers consulted with senior scientists and professionals affiliated with BWF and HHMI.

Because of the limited time frame of the course, it was decided that certain important topics, such as lab safety, would not be covered. Course developers and focus group participants felt that this information was either taught at most universities or was available from other sources. The course developers eventually narrowed down the list of potential session topics to 14, which they thought could be covered adequately within the projected three-and-a-half-day time frame of the course. These topics were

- Laboratory leadership
- Project management
- Collaborations
- The scientific investigator within the university structure
- Getting funded
- Getting published
- Current issues in research ethics
- Time management
- Data management and laboratory notebooks
- Mentoring and being mentored
- Gender issues in the laboratory
- Technology transfer
- Obtaining and negotiating a faculty position
- Budgets and budgeting

THE 2002 COURSE EVALUATION: PROCESS AND OUTCOMES

The 2002 course participants completed an evaluation at the end of each session and an overall evaluation at the end of the course. Completed forms were collected as participants left the session rooms. The evaluations were anonymous—responses were associated with the participant's badge number on the evaluation form. The number was then linked to the participant's demographic information (e.g., academic level, degree) but not to his or her name. Additional feedback was obtained from a focus group held with several course participants directly after the course ended. Evaluations at six months and at one year were conducted to determine which components of the course had been useful to participants.

The following six sessions (in alphabetical order) received the highest ratings:

- "Getting Funded"
- "Mentoring and Being Mentored"
- "Obtaining and Negotiating a Faculty Position"
- "Roundtable Discussion of Problems in Scientific Management"
- "Time Management"
- "Workshop in Basic Laboratory Leadership Skills"

Note: In the one-year evaluation, course participants rated the "Project Management" session higher in terms of value than they did at the time of the course.

Many participants liked that the course was held as a "retreat" rather than at a university or some other setting where it would be more difficult to focus on the course content and take advantage of the networking opportunities. One individual would not have been comfortable discussing a laboratory management problem if the course had been offered at the home university because of the lack of anonymity in such a setting.

Many respondents commented that one of the most valuable parts of the course was the question-and-answer (Q&A) period at the end of each session. This part of the session was sometimes considered more valuable than the structured presentations. Many respondents also felt that the networking opportunities during the breaks and meals were very important and would like to have had even more such opportunities (including a more purely social event). The most popular format for the sessions was the small breakout group—talking to each other about shared lab management problems, often with the participation of a senior scientist, was more useful than listening to panel presentations. Many participants also noted that the most useful panels included background information provided by the presenters, followed by case study examples. Having a diverse panel in terms of age, faculty position, and scientific discipline was also thought to be useful.

For more about the 2002 BWF-HHMI course sessions and evaluation outcomes, see the full version of the case study at *http://www.hhmi.org/labmanagement*.

USING THE 2002 COURSE EVALUATION TO IDENTIFY TOPICS FOR THE 2005 COURSE

The evaluation outcomes from the 2002 course were crucial in shaping the format and content of the 2005 course. Some sessions were dropped, others were presented in a slightly different format, and some new sessions were added. For example, the following sessions were added to the 2005 course:

- "Teaching and Course Design"
- "Strategies for Success for Basic Scientists"
- "Strategies for Success for Physician-Scientists"
- "Mock Study Section"

On the other hand, "Technology Transfer," "Current Issues in Research Ethics," and "Getting Published" were not offered in 2005 because participants would be able to obtain information about technology transfer and research ethics at their institutions and many were already experienced with the process of publishing their research. Although the course organizers thought sessions on these topics would be useful, other topics seemed to represent a more pressing need for the BWF-HHMI course participants. The sessions "Data Management and Laboratory Notebooks" and "Budgets and Budgeting" also were not offered, although aspects of these topics were included in the reconfigured sessions on project planning and getting funded. The topic of negotiating a faculty position (paired with the topic of securing a faculty position at the 2002 course) was not addressed in 2005 because this group of participants had already secured their faculty appointments (see page 103, "Speakers and Participants," for more on the criteria used for selecting participants in the 2005 course).

The following is a list of topics that were included the 2005 course:

- Laboratory leadership and management in science
- How to navigate the university structure
- Securing tenure
- Project planning
- Time management
- Mentoring and being mentored
- Collaborations
- Gender issues ("Sex and Science")
- Teaching and course design
- Strategies for success for basic scientists

- ❖ Strategies for success for physician-scientists
- ❖ Getting funded and budgets
- ❖ Mock study section
- ❖ Problems and solutions in scientific management

See page 105 for an overview of the sessions at the 2005 course and feedback from participants.

ORGANIZING THE 2002 AND 2005 COURSE SESSIONS

Once the course topics had been chosen, the next step was to develop the topics into sessions. This process was roughly the same for both courses. The session organizers researched the topics, determined the amount of time needed to address each topic and the format to be used, identified and contacted potential speakers, worked with confirmed speakers to develop the presentations, and organized the background materials for the course notebook. The course coordinator—a third-party consultant paid by both organizations—set the final course agenda, sent out invitations to speakers and participants, and tracked the responses.

In 2002, the six session organizers developed their sessions independently (e.g., selecting speakers and working with them to shape session content) and reported directly to the course organizer. For the 2005 course, session organizers had the same responsibilities that they had for the 2002 course, but the structure for managing the course overall was modified a bit. Three people—the course coordinator and the HHMI and BWF course codirectors—now had principal responsibility for managing the development of the course. The course coordinator assigned sessions to the course codirectors who, in turn, oversaw the work of the session organizers. Managing oversight in this way enabled decisions to be made more quickly, ensured more consistency across the sessions, and reduced the potential for overlapping content.

For each course, the preparation time for materials, speaker invitations, presentations, and the course notebook (see page 104, "Course Materials") was about 10 months.

Speakers and Participants

Both courses were taught by scientists and other professionals from academia and industry. Participants were limited to current and former BWF and HHMI grant recipients, who were selected on the basis of the stage they had reached in their scientific careers and diversity in terms of gender, geographic location, type of academic institution, and degree (i.e., Ph.D., M.D., M.D./Ph.D.). The 128 participants at the 2002 course were biomedical research scientists who had recently received their first academic appointment or were postdoctoral fellows looking for an appointment. The 100 participants at the 2005 course were farther along in their careers—

advanced postdoctoral fellows (individuals who had accepted, but not yet begun, a faculty position) and new faculty (individuals within one to two years of starting their faculty appointments). The decision to target this more advanced group was the result of feedback from the 2002 course in which early-stage postdoctoral fellows noted that they were not yet ready to take full advantage of sessions that focused on more advanced career development and managerial topics, such as preparing for tenure and laboratory leadership.

Cost per Participant

The actual cost per participant is difficult to calculate because HHMI lent much of its infrastructure to the course and most development costs were included in staff salaries or in time donated by speakers. However, not counting these costs, the amount for the 2002 course was approximately $2,800 per participant; the amount for the 2005 course was approximately $2,000 per participant. These costs were paid for by the sponsors. Most of these amounts can be attributed to travel, meals, lodging for participants and speakers, and speaker honoraria. A similar course conducted for on-site participants at a university would cost significantly less.

Course Materials

At both courses, participants were given a course notebook—a large three-ring binder containing summaries of the sessions and learning objectives, outlines of the session presentations, and reference lists. The notebook also contained exercises that were to be completed during or after some of the sessions. For sessions where participants were to be split into smaller groups, the notebook contained lists of participants in each group. The notebook was organized into sections for each day of the course. Participants were asked to bring the notebook with them to each session, or at least each day's material. A map of the conference center and a course schedule were included in the front pocket of the notebook.

Course participants were asked to read the materials for each session ahead of time to familiarize themselves with the session content and logistics. This was particularly important for sessions in the 2005 course that had a somewhat unusual format, such as "Laboratory Leadership and Management in Science" and its small-group sessions.

In addition to the session-specific material, the course notebook contained copies of articles on topics that were not covered in the course, such as scientific publishing and equipping a lab.

In addition to the course notebook, participants were also given an opportunity to view samples of the following resources:

- Barker, Kathy. *At the Helm: A Laboratory Navigator.* Cold Spring Harbor, NY: Cold Spring Harbor Laboratory Press, 2002.
- Howard Hughes Medical Institute. Videos on laboratory safety (available at no charge at *http://catalog.hhmi.org*).

- Kanare, Howard M. *Writing the Laboratory Notebook*. Washington, DC: American Chemical Society, 1985.
- Medawar, Peter B. *Advice to a Young Scientist*. New York, NY: Harper & Row, 1979.
- Portny, Stanley E. *Project Management for Dummies*. New York, NY: Hungry Minds, 2001.
- Reis, Richard M. *Tomorrow's Professor: Preparing for an Academic Career in Science and Engineering*. New York, NY: IEEE Press, 1997.

SESSION FORMATS: 2002 AND 2005 COURSES

Course topics were presented in four formats: workshop, panel discussion, roundtable discussion, and single-speaker or keynote address. Some sessions of interest to particular subgroups of participants were offered concurrently. Each session concluded with time for Q&A. The courses also included opportunities for participants to informally network with their peers, the speakers, and senior scientists and staff from BWF and HHMI. As a result of the 2002 course evaluation, the 2005 course included even more time for Q&A in the sessions and provided participants with more opportunities for informal interaction, including more free evenings.

SESSION SUMMARIES: 2002 SESSIONS REVISED FOR THE 2005 COURSE

Both the 2002 and 2005 courses began with an evening reception and welcome and keynote addresses by the senior staff of BWF and HHMI. (Excerpts of the 2002 course keynote by HHMI president and Nobel laureate Thomas R. Cech can be found at *http://www.hhmi.org/labmanagement*.) The courses continued over the next three-and-a-half days, with a full schedule of back-to-back sessions (see appendix 3 for the 2005 course schedule).

Collaborations

The 2002 and 2005 courses both included sessions that explored the benefits, challenges, and limitations of collaborative research as well as the practical issues of establishing collaborations across sectors and among researchers in disparate fields. In 2002, the format was a single one-and-a-half-hour panel session that consisted of 10-minute panel presentations by three senior scientists, representing academia and industry, followed by a Q&A period. In the 2005 course, the length and format of the session remained the same. However, the session was held twice, concurrently with the two "Mentoring and Being Mentored" sessions, so that participants could attend each and benefit from the added interaction afforded by a small group (participants were split into two groups, alphabetically by last name: "A–L" and "M–Z"). Speakers at the 2005 course talked about the rewards and risks of collaboration and, in response to feedback from the 2002

course, talked about how beginning scientists can approach someone about starting a collaboration as well as the risks and benefits of sharing work, responsibility, and credit.

In the 2005 course evaluation, respondents thought that the most useful topics were authorship issues, balancing collaborations with independent research, tips on what makes a collaboration work and what doesn't, how to distinguish between help and a collaboration, how to say no to projects, and the pitfalls of collaboration time commitment with respect to getting ready for tenure review. Several participants commented that, although it was interesting to hear about different paths to successful collaborations, they would have preferred less "personal storytelling" and more time for either Q&A or discussion of a case study. They also noted that they preferred the presentations that dealt with the small-scale collaborations in which junior faculty are usually involved. Participants wanted to learn more about how to initiate a collaboration, how to negotiate authorship, and how to work with senior-level collaborators. Others wanted more discussion about the roles of physician-scientists and basic scientists in a collaboration.

Gender Issues in the Laboratory

The topic of gender issues was included in the 2005 course in the form of a one-hour lecture, titled "Sex and Science." Topics included working with women in science and being a woman in science. Research was presented on why women are poorly represented in the leadership of science. Following the lecture, participants were presented with two case studies to work through with a facilitator over lunch. Participants were asked to discuss what they would do as women faculty members and as colleagues.

Feedback from the 2005 course evaluation indicated that this session was well received by participants. In particular, they valued the discussion of the case-study exercise, which revealed the presence of unintentional gender bias using the examples of letters of recommendation. They also liked the non-confrontational nature of the speaker's presentation and her use of data in documenting bias. Participants wanted more information on how to address bias in themselves and in others. They also wanted more discussion of minority issues and how to handle sexual harassment. They wanted more case studies with real-life examples and solutions. Several participants suggested having a panel format instead of a single speaker or having a panel discussion at the end of the lecture to discuss topics raised in the lecture.

Getting Funded

This topic was covered in the 2002 and 2005 courses in two-hour sessions that used much the same format: Twenty-minute presentations by three speakers, followed by a Q&A period. In 2005, the session was taught by representatives from the National Institutes of Health (NIH), the National Science Foundation (NSF), and a senior academic scientist. They focused their presentations toward beginning investigators who are writing their first grant proposals. The session also included information about basic budgeting principles, such as what constitutes a reasonable budget, direct versus indirect costs, managing salaries across grants, equipment ownership, and tracking expenditures to manage current funding and prepare for the next grant cycle.

This was a very popular session. Participants particularly valued the tips on writing a grant proposal and information about NIH small-grant opportunities. Many appreciated learning more about the roles of NIH staff and the types of grants offered, as well as the process and timelines for NIH grant reviews. Participants would have liked greater clarity about the differences between NSF and NIH funding goals and grant application processes, as well as how to choose a study section and an institute appropriate for the project. Some participants wanted to know about funding sources other than NSF and NIH, such as foundations. Others wanted more information about balancing a budget, keeping track of expenses, and making the most of start-up funds. Many wanted to see a real sample budget, with in-depth recommendations on percent allocations to each category of labor, equipment, and supplies. Several participants mentioned that they would have liked the session to be held at the beginning of the course so they could have time to discuss the session topics more fully during meals and the course's social gatherings. Several participants noted that they would have preferred shorter speaker presentations and more time for Q&A.

Laboratory Leadership Skills

The first session at both the 2002 and 2005 courses dealt with the topic of laboratory leadership. Because interpersonal skills are among the most difficult to teach effectively and the most important in managing a laboratory, the course organizers allotted the largest amount of time to this session. In both courses, the sessions were facilitated by career development professionals.

In 2005, the session began with a one-hour lecture on the first night of the course that provided an overview of what leadership means in the scientific community and illustrated the distinction between management and leadership. The lecture set the stage for the small-group modules that would be conducted the next day. For these modules, participants were divided into five groups of 20 participants; each group met in a different room with a different facilitator. (A list of participants and their assigned groups was included in the course notebook.) Three weeks before the course, participants were asked to complete two personality inventories: the Meyers-Briggs and Skillscope. Participants were given the results of these assessments in their small groups and used the results to identify the skills they needed to improve to become more effective leaders and practiced these skills. The session was well received by participants. One noted that the session was an "eye-opener." Many commented that they found the exercises to be more practical than expected and that it was helpful to explore interpersonal issues in depth. Some participants would have liked more exercises to practice solutions to common lab problems and problems encountered with outside collaborators and scientific competitors.

Mentoring and Being Mentored

For the 2005 course, the session was offered twice, concurrently with the two "Collaborations" sessions, so that participants could attend each and benefit from the added interaction afforded by a small group (participants were split into two groups, alphabetically by last name: "A–L" and "M–Z"). The 90-minute sessions consisted of a panel discussion with two speakers (a

third speaker could not attend because of illness)—a senior scientist and a junior faculty member. The speakers each gave a 20-minute presentation, followed by a Q&A period. Speakers were asked to discuss the following topics:

- How can I be a better mentor?
- How can I get mentoring for myself?
- How can I encourage members of my lab to mentor one another?

While feedback to the 2005 session was generally positive, many participants thought the time allowed was insufficient. Participants also wanted more case-study examples of mentoring situations and of common mistakes and their solutions. They suggested a better format might have involved discussing case studies in small groups and then reconvening to discuss outcomes with senior-level faculty mentors. Other participants wanted advice on how to maintain personal boundaries when a young investigator is mentoring a postdoc who is close in age and how to distinguish between mentoring and micromanaging. Yet another participant wanted more discussion on writing letters of reference. Another suggestion was to divide the session according to topics such as "mentoring others," "finding a mentor," and "being mentored," with specific guidelines and case studies for each topic.

Project Management

The 2005 course session focused on the concepts of project planning that are most useful to running a new laboratory but with some discussion of large collaborative projects in a clinical setting. The session comprised two parts. The first part was a plenary session consisting of 45-minute presentations by two speakers, both of whom were practicing scientists at the same institution, followed by 30 minutes of Q&A. Speakers introduced participants to the basic concepts of project planning (i.e., defining project outcomes, clarifying project authority, developing schedules, assessing and managing risks, and maintaining control), with a focus on ones most useful to early-career scientists to effectively run a new laboratory.

Part two of the session was a small-group exercise. At the end of the lecture session, teams of 8 to 10 randomly assembled participants were given a case study, presented as a game, to solve over lunch (the case study can be found in the resources at *http://www.hhmi.org/labmanagement*). The teams were given a set of objectives, a budget, and a list from which to choose staff members and collaborators. Each team was then scored on the basis of the completed objectives and the effective use of funds.

Participant feedback on the session was positive, although many participants thought that the large-scale collaboration discussion was of little value to the beginning investigator. The most useful topics covered in the session included allocation of resources and project plan execution, time management, and project planning software. Some participants wanted to know

more about how to build the training of technician staff into project planning and how to motivate postdocs to adopt project-planning strategies. Others wanted to know, given the limited resources of junior faculty, how to prioritize projects.

Many participants felt that the plenary portion of the session was too long and more time should have been set aside for the case study or for Q&A. Some participants thought it would have been more valuable if the speakers had been from different institutions. Participants reacted positively to the case-study portion of the session, but several said they would have preferred a more structured setting and time frame for this exercise, instead of having it over lunch, so that participants could be sure of completing the exercise.

Roundtable Discussion: Problems and Solutions in Scientific Management

The 2002 and 2005 courses both featured a session in which participants discussed case studies that represented common situations encountered by beginning academic scientists. The session was included as a way to tie together all the issues discussed during the course and to provide participants with an opportunity to use what they had learned in the course to develop solutions to lab management problems. The session was offered on the last day of the course after participants had the benefit of attending all the sessions and could use their newly acquired knowledge to address the issues.

Before both courses, participants were asked to submit summaries of problems they had encountered in their labs. BWF and HHMI staff then selected 10 cases that were representative of the topics covered in the course and career situations of course participants. Cases were submitted anonymously, and the situations and characters in the cases were modified by the course coordinator to preserve participant anonymity. Participants met in the conference center auditorium for an introduction to the session. Then participants were assigned to small groups, each including one or more senior scientists from the course, to discuss the case studies.

The discussions of the case studies were handled differently in the 2002 and 2005 courses. In their evaluations of the 2002 course, participants noted that they did not find the reporting back of solutions to be useful; the most valuable aspect of the session was the small-group discussion.

For the 2005 course, the format was fine-tuned to reflect this feedback. Participants were asked to review the case studies before the course and keep them in mind throughout the relevant sessions of the course. After participants met in the conference center auditorium for the introduction to the session, they moved to different locations to join their preassigned discussion group. Each group was given three or four of the case studies to discuss over a two-hour period. A moderator, chosen from the course speakers, led the discussions and provided a senior scientist's perspective.

The session generated positive feedback from participants. Small-group, in-depth discussion of a few cases was considered by several participants to be the ideal format for this topic. Several participants said they would have liked even more time for this exercise to incorporate the skills they had learned during the course, and they suggested that the entire last day of the course be devoted to small breakout sessions to discuss the lessons learned in relation to case studies.

The Scientific Investigator Within the University Structure

The 2005 course session on university structure consisted of a 45-minute presentation by a senior scientist/administrator, followed by a 15-minute Q&A period. In addition to talking about many of the topics covered in the 2002 course, the speaker also discussed the organization of a typical medical center, individuals who can help advance a new investigator's career, research infrastructure (including the topics of direct and indirect costs), and the expectations for the beginning investigator outside the laboratory (e.g., committee service, teaching, advising).

Participant feedback to the session was mixed, although the majority of participants thought the information was useful. Of particular interest was the discussion on clinical revenue stream versus the research stream, how to balance scholarship and service, and how to build relationships with key people. Participants wanted to know more about when and how to build a relationship with a dean. More information on how to handle joint appointments across university schools (e.g., arts and sciences and medicine) would have been appreciated. Some participants thought that less time should have been spent on covering the information related to academic health centers, as that topic could have been discussed in the session specifically held for physician-scientists. It was suggested that course developers poll their target audience to better determine the type of institution on which to focus. Participants said they thought that this subject might be better suited to a panel format with speakers representing university-wide and school-level entities and different levels of administrative governance (e.g., dean, department head) and faculty points of view.

Time Management

Both the 2002 and 2005 courses offered a two-hour panel session on this topic. The format consisted of 15-minute presentations by three panelists (a mix of senior and junior faculty), followed by a Q&A period. The sessions focused on various aspects of time management in a laboratory setting: managing day-to-day activities efficiently; prioritizing demands according to goals; long-term planning for professional growth; and managing the concurrent demands of teaching, administrative duties, and family responsibilities. As in 2002, basic scientists and physician-scientists attended the 2005 session; time-management issues particularly germane to basic scientists and physician-scientists were addressed in a special session for each group.

As in the 2002 course, this was one of the most popular sessions. Participants particularly appreciated tips on how to motivate and manage without micromanaging, how to set priorities, how to provide constructive feedback, and how to manage the grant-writing process. They also liked the

balance between younger and older panelists and professional levels. Participants said they would have liked to hear about how to deal with burnout and how to engage others to help save time. They also wanted recommendations on software and other tools, as well as more practical examples for time management. Although participants appreciated the discussion of personal time management as well as lab time management, several thought that too much time was spent on the topic of young children and on other family issues that were of limited concern to participants who did not have spouses and children.

SESSION SUMMARIES: NEW SESSIONS DEVELOPED FOR THE 2005 COURSE

From information provided in the 2002 course evaluations, course organizers decided to develop several new sessions.

Mock Study Section

This evening session was optional. The format consisted of a skit by several scientists who played the roles of administrators and reviewers in an NIH study section reviewing an NIH R01 application and an NIH K award application. One good and one poor application were reviewed. This was followed by a Q&A segment. The session was extremely popular; participants found the session both entertaining and informative. Participants found it helped demystify the study section process. Of particular interest was finding out how quickly decisions are made and, consequently, the importance of presenting ideas clearly and succinctly in the grant proposal. Several participants recommended that grant proposals be handed out to course participants ahead of time so that they could judge the grants themselves and then compare their responses to the mock reviewers'. It was also suggested that an additional R01 grant proposal be used as an example instead of the K award proposal, because many of the participants already had a K award. Several participants thought the session could be longer and requested more time for Q&A.

Securing Tenure

In response to feedback from the 2002 course, this topic was developed into a separate session at the 2005 course to help course participants, who had already secured faculty positions. The format consisted of 15-minute presentations by three panelists, followed by 45 minutes of Q&A. The panel comprised two faculty (an assistant professor and an associate professor) representing a research university and a medical center and a senior scientist at a research university. The session addressed the following issues: tenure in today's environment, the process and criteria for achieving tenure, and pitfalls to avoid along the way. Topics included the tenure review process and expectations for promotion, what to do and when, building a national reputation, developing the dossier, and special tenure-related issues of concern for physician-scientists and women.

This was a popular session. Especially appreciated were the details about the tenure process and what is most important—and less important—for

achieving tenure and how to prepare and add documents to the tenure portfolio. Participants also appreciated getting the perspectives of speakers at different career stages; the perspective of someone who had just completed the tenure process was thought to be more valuable than the perspective of someone currently going through it. The discussion on maternity leave was also considered valuable, although one participant commented that the subject might have been better covered by a dean or department chair rather than someone "going through it." Participants wanted to know more about several issues, including how tenure letters are evaluated and scored, how to handle a shortened tenure clock, and the impact of clinical service on promotion and tenure. It was suggested that a sample tenure dossier be included in course materials. Also requested was a case study on someone who failed to achieve tenure, and an analysis of why this occurred and what recourse options the denied applicant might face.

Teaching and Course Design

This session was added because an academic appointment often includes a teaching component for which new faculty are often unprepared. Participants from the 2002 course recognized this fact, citing this topic as one that should be covered in future courses. The session consisted of a panel with three speakers representing a large research university, a small liberal arts college, and a medical school. Each speaker gave a 30-minute presentation, followed by 30 minutes of Q&A. Speakers introduced participants to some effective tools, including active-learning techniques, to use in their classes. The following topics were covered:

- Teaching at a large research-oriented university
- Teaching at a medical school
- Teaching at a liberal arts college or university
- Balancing the demands of research, teaching, and service

Although participants at the 2002 course noted that a session on teaching would be useful, the 2005 course evaluation revealed that many participants found it to be of little relevance to their roles as scientific managers. Others said they did not need some of the information—such as that on course development—at this time. Still others felt there was insufficient time to cover the three types of teaching (liberal arts college, research university, medical school). The most frequent suggestion was to omit the topic of teaching at a liberal arts college and reduce the time spent on the topic of teaching at a medical school. Participants recommended splitting the session into three groups to address each topic in greater depth. Participants found the theory behind active learning to be useful. They wanted more clarification on the difference between teaching in the lecture setting and the one-on-one teaching that occurs with postdocs and graduate students. They also wanted more information on active-learning techniques, designing exam questions, leading a discussion, and grading and handling grade-related complaints. They also wanted more discussion of how to be rewarded professionally for good teaching.

Two Sessions for Two Distinct Groups: Basic Scientists and Physician-Scientists

Two sessions were targeted to two distinct groups: basic scientists and physician-scientists. The decision to develop these two new sessions was a direct outcome of the 2002 evaluation, in which many participants who were conducting basic research thought that too much time was being devoted to the challenges faced by the physician-scientist. Although the course organizers recognized the benefit of familiarizing each group with the other's issues, they also decided that there would be significant benefit to hold concurrent sessions for each group.

Strategies for Success for Basic Scientists. This session consisted of a 90-minute panel discussion with three senior basic scientists, each giving a 10-minute presentation, followed by open discussion with the audience. Success for new basic scientists in an academic department is often defined in terms of achieving tenure. Panelists provided some advice on key issues for tenure-track basic scientists: securing and maintaining funding, obtaining peer recognition, publishing, maintaining a productive laboratory, teaching effectively, and fitting in with their respective departments. The session was rated highly by participants. These participants particularly liked the tips on funding, working with editors, managing conflict in the lab, and setting expectations for lab members. Participants noted that they would have liked to learn more about funding opportunities; how a basic scientist should navigate the terrain within a medical school (especially if there are clinicians on the tenure committee; and how to recruit and select graduate students, postdocs, and technicians.

One participant suggested the following: Have the speakers address the following statement: Give us your favorite three insider tricks. Also have them answer the following questions: What took you years to figure out? What do you do that no one else does?

Strategies for Success for Physician-Scientists. This session consisted of a 90-minute panel discussion with four senior physician-scientists, each giving a 10-minute presentation, followed by open discussion with the audience. Panelists provided some advice on issues of concern to physician-scientists, including negotiating for and retaining protected research time, understanding how to approach tenure review by managing tenure and research, and building a clinical base that is aligned with research efforts. The session was rated highly by participants.

The participants particularly liked the "10 rules for success" that were outlined by one of the speakers, the discussion on finding a balance between practical and speculative research, and the advice on the importance of finding a clinical base for individual research projects. The discussions about whether to look for a position in a clinical versus basic department were also valued highly.

Participants would have liked more discussion about how to develop a strong basic science research program in a clinical department, how to improve time management skills, and how to address the burnout associated with having a demanding schedule. One person suggested that future speakers address the following two issues specifically: What are the 10 most common problems that a physician-scientist will encounter? How should a physician-scientist deal with these problems?

THE 2005 COURSE EVALUATION: PROCESS AND OUTCOMES

The method for evaluating the 2005 course was generally similar to that for the 2002 course. Participants completed an evaluation for each session as well as for the entire course. However, no postcourse focus group with participants was held. Instead, course organizers obtained feedback from representatives of the organizations in the Partners in Scientific Management Program, who met several times during the course with course organizers to share their observations about course format and content.

Results from the evaluation completed by participants immediately after the 2005 course are presented below. (Because BWF and HHMI do not intend to hold the course again, evaluations at six months and at one year are not planned.)

Overall Impressions of the Course

Ninety-one of the 100 participants in the 2005 course completed the overall course evaluation. The course was very well received by participants; more than 90 percent of respondents considered the overall quality of the course content, the relevance to their roles as scientific managers, and the opportunities for networking as "excellent" or "very good." More than 90 percent of participants who had labs said they expected to change the way they manage their labs. One participant, for example, noted "[the course] has motivated me to think about how I manage, instead of just letting things happen." Other participants reported feeling more confident and prepared as a result of attending the course. Postdoctoral-level participants considered themselves more likely to use the course information than participants who were junior faculty; M.D.s reported a greater intention to use the course information than did M.D./Ph.D. or Ph.D. participants. Ninety-seven percent of respondents said they would recommend the course to colleagues. When asked to identify the single most important component of the course, participants mentioned the following:

- Advice and perspectives of senior investigators combined with the experience of outside consultants
- Opportunity to talk with and hear from others in the same situation
- Opportunity to learn strategies for lab leadership and management in a formal way and gain insights into personality types and methods for developing lab workers

The mock study section and project planning session were also mentioned as important aspects of the course.

The following, in order of popularity, are the eight most popular sessions, which included lectures, panels, and small-group discussions:

- "Mock Study Section"
- "Getting Funded and Budgets"
- "Time Management"
- "Laboratory Leadership and Management in Science"
- "Securing Tenure"
- "Problems and Solutions in Scientific Management"
- "Strategies for Basic Scientists"
- "Strategies for Physician-Scientists"

Overall Course Length

Approximately 70 percent felt that the course length was appropriate, although a large number (28 percent) thought it was too long. Both the 2002 and 2005 courses had relatively grueling schedules, with participants involved in sessions from early in the morning until sometimes late in the evening. However, because of the difficulties of arranging schedules and travel and the perceived lack of time on the part of the participants for anything outside of research pursuits, in both cases it was decided to deliver the course in one intensive retreatlike session. Future course organizers who do not have the option to provide a retreat environment may choose to break up the course sessions over several months, either as brown bag lunches or in two- to three-hour sessions.

Improving the Course

Participants had the following suggestions for improving the course:

- Have a panel of senior scientists discuss specific problems they have encountered, the strategies they used to solve the problems, and what they might do differently.
- Include a full session on conflict management.
- Add the topics of budget/purchasing, hiring and firing people in the lab, writing a letter of recommendation, and how to handle oneself professionally (e.g., maintaining a professional distance from lab members, avoiding offending colleagues and lab members).
- Provide even more diversity in presenters to underscore the notion that there are many management styles that can lead to success and failure.
- Cover the subject of teaching in greater depth instead of a cursory way; if this is not possible, use the time for other topics.

LESSONS LEARNED FROM THE BWF-HHMI COURSES IN SCIENTIFIC MANAGEMENT

The lessons learned from the two courses can be categorized into four different subjects: preparation, format, content, and logistics.

Preparation

In terms of preparing the participants before their arrival at the course, course organizers should consider providing, when possible, readings and other materials in advance so that more time can be spent on questions, discussions, and other activities. This can be accomplished by setting up a Web page with PDF files for downloading. Organizers should also consider asking the participants when they register what issues are of significant interest to them, and specifically raise some of these issues in the course discussion sessions to reflect the participants' pressing concerns. The more the course is tailored to the participants' perceived needs, the better they will internalize the materials.

Format

Throughout the evaluations, from both courses, the participants stressed that they got the most information from the Q&A periods that followed the presentations. As such, future organizers could consider having speakers provide shorter introductions to each session and leave more time for discussion. As learned in the "Teaching and Course Design" session, active-learning exercises are popular. Course organizers should try to involve the participants as much as possible in small discussion groups, breakout sessions, and role-playing activities whenever possible.

A divide has always existed between basic and clinical scientists. While joint sessions are valuable so that each group can better understand the challenges faced by the other group, in the 2005 course, having specific sessions for each group was very well received.

One course participant suggested having small moderated discussion groups that meet once or twice a day to reflect on the large-group sessions. While this would add more time to the course, it could also significantly improve the networking opportunities, especially if the groups consisted of different individuals each night and were organized by either stage of career, basic or clinical research focus, or geographical distribution.

Several participants recommended considering reserving the last day for discussion only—perhaps expanding the "Problems and Solutions in Scientific Management" session, in which speakers and panelists join the participants in small groups to discuss case studies.

In both courses, participants recognized the value of having a chance to rub shoulders with senior principal investigators (PIs)—in terms of networking opportunities and the advice that could be derived from more "seasoned" PIs. Course organizers should consider having senior PIs attend the course and interact with the participants informally as much as possible.

Content

Often there is resistance in the scientific community to personality inventories and leadership assessments like the Myers-Briggs and Skillscope tools. Feedback from the 2002 and 2005 course participants indicated that the insights gained from these assessments proved valuable when participants returned to their labs. To ensure that participants get the most out of what these tools can offer, training organizers should take great care to explore the results using exercises that reflect the language and everyday concerns of research scientists.

After preparing two courses, and developing several new sessions for the second course, there are few topics that have not been covered to some extent. Three areas were identified by participants in the second course as still needing to be addressed, however. Future course organizers might consider adding sessions devoted to conflict resolution, staffing a laboratory, and writing letters of recommendation.

Logistics

The schedule was demanding and was especially difficult for individuals from the West Coast who faced a three-hour time change. When planning a national course, the organizers might consider starting the morning sessions later or moving the conference/retreat location to another time zone (Mountain or Central).

The two courses each took approximately three-and-a half-days plus travel time, or between four and four-and-a-half days for each course. Several people would have preferred having the course offered over a weekend to avoid missing an entire week in the lab. However, others appreciated being able to reserve the weekends for their families. Because of financial and time constraints, it is unlikely that many organizations could offer a similar intensive course. It is recommended that organizers not try to cover all the topics from the 2002 and 2005 courses but instead select sessions that are especially pertinent to their audience's interests.

Appendix 3

COURSE SCHEDULE
2005 BWF-HHMI
Course in Scientific Management

HHMI Headquarters, Chevy Chase, MD
Monday, June 6, to Friday, June 10, 2005

Monday, June 6

3:00–6:00 p.m.	Registration
4:00–5:00 p.m.	Course Organizers' Meeting* *Room D115*
5:00–6:00 p.m.	Partners' Program Meeting* *Room D125*
6:00–6:30 p.m.	Welcome Reception *Great Hall*
6:30–7:30 p.m.	Dinner *Dining Room*
7:30–8:00 p.m.	**Welcome Address** *Auditorium* Peter J. Bruns, HHMI Enriqueta C. Bond, BWF
8:00–9:00 p.m.	**Laboratory Leadership Introduction** *Auditorium* Edward O'Neil, University of California–San Francisco

Rathskeller open until 11:00 p.m.

Tuesday, June 7

7:00–8:00 a.m.	Breakfast *Dining Room*
8:00–10:00 a.m.	**Laboratory Leadership and Management in Science** **Module 1, Leadership Styles and Self-Awareness** *Auditorium, Room D124, Room D125, Rathskeller, Computer Room* Edward O'Neil, University of California–San Francisco Anne Faber, Center for Creative Leadership Ann Lambros, Wake Forest University School of Medicine Thomas E. Sappington, Consultant George E. Sweazey, Executive Development Group, LLC
10:00–10:30 a.m.	Break *Great Hall*
10:30–11:30 a.m.	**Laboratory Leadership and Management in Science** **Module 2, Giving and Receiving Feedback** *Auditorium, Room D124, Room D125, Rathskeller, Computer Room* Edward O'Neil, Anne Faber, Ann Lambros, Thomas E. Sappington, George E. Sweazey

11:30 a.m.–Noon	Break *Great Hall*
Noon–1:00 p.m.	**Laboratory Leadership and Management in Science** **Module 3, Working With Others** *Auditorium, Room D124, Room D125, Rathskeller, Computer Room* Edward O'Neil, Anne Faber, Ann Lambros, Thomas E. Sappington, George E. Sweazey
1:00–2:00 p.m.	Lunch *Dining Room*
2:00–3:30 p.m.	**Laboratory Leadership and Management in Science** **Module 4, Working Through Others** *Auditorium, Room D124, Room D125, Rathskeller, Computer Room* Edward O'Neil, Anne Faber, Ann Lambros, Thomas E. Sappington, George E. Sweazey
3:30–4:00 p.m.	Break *Great Hall*
4:00–4:30 p.m.	**Laboratory Leadership and Management in Science** **Module 5, Acquiring and Using Organizational Power** *Auditorium, Room D124, Room D125, Rathskeller, Computer Room* Edward O'Neil, Anne Faber, Ann Lambros, Thomas E. Sappington, George E. Sweazey
4:30–5:00 p.m.	**Laboratory Leadership and Management in Science** **Module 6, Goal Setting** *Auditorium, Room D124, Room D125, Rathskeller, Computer Room* Edward O'Neil, Anne Faber, Ann Lambros, Thomas E. Sappington, George E. Sweazey
5:00–5:30 p.m.	**Evaluation for Laboratory Leadership and Management in Science Session** *Auditorium, Room D124, Room D125, Rathskeller, Computer Room*
6:00–6:30 p.m.	Reception *Great Hall*
6:30–7:30 p.m.	Dinner *Dining Room*
7:30–8:30 p.m.	Partners' Program Meeting* *Room D125*

Rathskeller open until 11:00 p.m.

Wednesday, June 8

7:00–8:00 a.m.	Breakfast *Dining Room*
8:00–9:00 a.m.	**How to Navigate the University Structure** *Auditorium* R. Kevin Grigsby, Penn State College of Medicine
9:00–10:30 a.m.	**Securing Tenure** *Auditorium* Meta Kuehn, Duke University Medical Center Suzanne Pfeffer, Stanford University Matthew Redinbo, University of North Carolina–Chapel Hill

10:30–11:00 a.m.	Break *Great Hall*
11:00 a.m.–1:00 p.m.	**Project Planning: Focusing Your Resources to Get Results** *Auditorium* Milton Datta, Emory University School of Medicine Jonathan W. Simons, Emory University School of Medicine
1:00–2:30 p.m.	Lunch *Dining Room* (participants will be working on a project planning case over lunch)
2:30–4:30 p.m.	**Time Management** *Auditorium* Hopi Hoekstra, University of California–San Diego Sandra L. Schmid, The Scripps Research Institute Brent R. Stockwell, Columbia University
4:30–5:00 p.m.	Break *Great Hall*
5:00–6:00 p.m.	**Mentoring Lecture** *Auditorium* Emily Toth, Louisiana State University
6:00–6:30 p.m.	Reception *Great Hall*
6:30–8:30 p.m.	Dinner and Evening Social *Dining Room and Outdoor Patio*

Rathskeller open until 11:00 p.m.

Thursday, June 9

7:00–8:00 a.m.	Breakfast *Dining Room*
8:00–9:30 a.m.	**Mentoring and Being Mentored Panel** *Auditorium* William E. Goldman, Washington University in St. Louis Jo Handelsman, University of Wisconsin–Madison Neil L. Kelleher, University of Illinois at Urbana–Champaign Collaborations *Rathskeller* Jessica C. Kissinger, University of Georgia Jennifer Lodge, St. Louis University Pradipsinh K. Rathod, University of Washington–Seattle
9:30–10:00 a.m.	Break *Great Hall*
10:00–11:30 a.m.	**Mentoring and Being Mentored Panel** *Auditorium* William E. Goldman, Washington University in St. Louis Jo Handelsman, University of Wisconsin–Madison Neil Kelleher, University of Illinois at Urbana–Champaign **Collaborations** *Rathskeller* Jessica Kissinger, University of Georgia Jennifer Lodge, St. Louis University Pradipsinh Rathod, University of Washington–Seattle

11:30 a.m.–Noon	Break *Great Hall*
Noon–1:00 p.m.	**Sex and Science** *Auditorium* Jo Handelsman, University of Wisconsin–Madison Sarah Miller Lauffer, The Wisconsin Program for Scientific Teaching Christine Pfund, The Wisconsin Program for Scientific Teaching
1:00–2:00 p.m.	Lunch *Dining Room* (participants will continue the "Sex and Science" discussion over lunch)
2:00–4:00 p.m.	**Teaching and Course Design** *Auditorium* Curtis R. Altmann, Florida State University College of Medicine Jo Handelsman, University of Wisconsin–Madison Manju M. Hingorani, Wesleyan University
4:00–4:30 p.m.	Break *Great Hall*
4:30–6:00 p.m.	**Strategies for Success for Basic Scientists** *Auditorium* David Cortez, Vanderbilt University Jo Handelsman, University of Wisconsin–Madison Sandra Schmid, The Scripps Research Institute **Strategies for Success for Physician-Scientists** *Rathskeller* Martin J. Blaser, New York University School of Medicine Suzanne Pfeffer, Stanford University Christine E. Seidman, Harvard Medical School Matthew L. Warman, Case Western Reserve University
6:00–6:30 p.m.	Reception *Great Hall*
6:30–7:30 p.m.	Dinner *Dining Room*
7:30–8:30 p.m.	Partners' Program Meeting* *Rathskeller*
7:30–8:30 p.m.	**Mock Study Section** *Auditorium*

Rathskeller open until 11:00 p.m.

Friday, June 10

7:00–8:00 a.m.	Breakfast *Dining Room*
8:00–8:15 a.m.	**Scientific Management: A Personal Perspective** *Auditorium* Thomas Cech, HHMI

8:15–10:15 a.m.	**Getting Funded and Budgets** *Auditorium* Anna M. McCormick, National Institute on Aging, National Institutes of Health Robert J. Milner, Penn State College of Medicine Judith E. Plesset, National Science Foundation
10:15–10:45 a.m.	Break *Great Hall*
10:45 a.m.–12:45 p.m.	**Problems and Solutions in Scientific Management** *Auditorium, Rooms D124, D125, D115, D116, Sitting area outside Room D124, Sitting area outside Room D125, Rathskeller, North Lounge, South Lounge*
12:45–1:00 p.m.	Adjournment *Auditorium* Peter J. Bruns, HHMI
1:00 p.m.	Boxed Lunches and Departures
1:15–2:30 p.m.	Partners' Program Meeting* *Room D125*

*The Course Organizers and Partners' Program sessions are not open to course participants.

Appendix 4

COURSE SUMMARY EVALUATION FORM

2005 BWF-HHMI Course in Scientific Management

COURSE SUMMARY EVALUATION **Badge Number:**_____

Personal Demographics (please check one box in each column)

Gender	Degree	Position	Funding Source
Male:	MD:	Postdoc:	BWF:
Female:	MD/PhD:	Jr. Faculty:	HHMI:
	PhD:	Other (specify):	Both:
	Other (specify):		(Partners leave blank)

Check the appropriate box:

Rate the *course* in terms of	1 Excellent	2 Very Good	3 Good	4 Fair	5 Poor
Overall quality of the content and format					
Relevance to your role as a scientific manager					
Opportunities for networking					

Check the appropriate box:

Rate the *speakers* in terms of	1 Excellent	2 Very Good	3 Good	4 Fair	5 Poor
Overall quality					
Demographics (career levels, gender, etc.)					

Would you recommend this course to an associate?

☐Yes ☐Maybe ☐No

Overall course length:

☐Too long ☐About right ☐Too short

Rate the course activities in terms of their value to you (rate only those you attended):

	1 Very Valuable	2 Somewhat Valuable	3 Average Value	4 Below Average Value	5 Not Valuable
Sessions					
Laboratory Leadership and Management in Science					
Securing Tenure					
Project Planning: Focusing Your Resources to Get Results					
Time Management					
Teaching and Course Design					
Getting Funded and Budgets					
Problems and Solutions in Scientific Management					
Concurrent Sessions					
Mentoring and Being Mentored Panel					
Collaborations					
Strategies for Success for Basic Scientists					
Strategies for Success for Physician-Scientists					
Keynote Talks					
How to Navigate the University Structure					
Mentoring Lecture					
Scientific Management: A Personal Perspective					
Workshops					
Sex & Science					
Mock Study Section					

Please indicate whether the number of participants in the course was:

☐Too many ☐About right ☐Too few

Please indicate whether the level of teaching in the course was appropriate to your degree of experience in laboratory management:

☐Too advanced ☐About right ☐Too basic

Please estimate how the information learned in the course will change how you manage and organize your lab (please leave *blank* if you do not currently manage a lab):

☐Significantly change ☐Moderately change ☐No change

Comments: _____

_____

_____

What do you think was the *single* most important component of the course and why?

_____

_____

What topics would you add *or* exclude in future course offerings and why?

Add:_____

_____

Exclude:_____

_____

How can we improve or enhance this kind of course in the future?

_____

_____

_____

Overall comments about the course:

_____

_____

_____

_____

_____