



ASHP Foundation Research Boot Camp

*Administered by the American Society of Health-System
Pharmacists Research and Education Foundation and
sponsored by an educational donation from Amgen*

APPLICATION INSTRUCTIONS

These instructions should be followed carefully. Only after all the requested information has been received, will an application be considered complete and eligible for evaluation by the ASHP Foundation's Review Panel.

<u>CONTENTS</u>	<u>PAGE #</u>
I. Program Description	2
II. Eligibility	4
III. Application Process/Selection Criteria	5
IV. Boot Camp Administration	6
V. Itemized Instructions for Application	6

APPLICATIONS THAT DO NOT STRICTLY COMPLY WITH THE APPLICATION INSTRUCTIONS WILL BE RETURNED WITHOUT REVIEW.

I. PROGRAM DESCRIPTION

The ASHP Research and Education Foundation’s Research Boot Camp is a research skills development program composed of distance education, experiential, and research conduct components. (See Figure 1.) The program aims to:

1. Foster the development of pharmacists with practice-based research skills;
2. Drive the advancement of translational research by providing clinicians with the expertise, tools and support to start a practice-based research program and answer practice-based research questions; and
3. Enhance safe and effective medication use by promoting evidence-based decision-making for individual patients and populations of patients.

Detailed learning objectives of the proposed curriculum are listed below in Table 1.

Figure 1. ASHP Foundation Research Boot Camp Structure

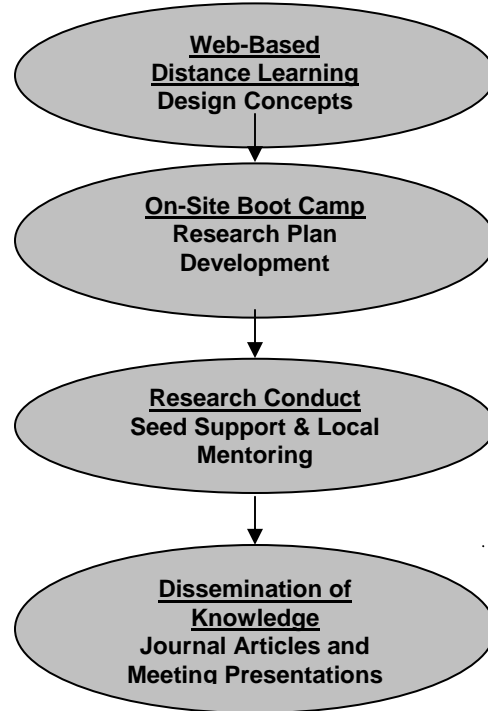


Table 1 – Research Boot Camp Learning Objectives

1. Generate an effectively worded, measurable research question(s) for a practice-based research study that can be conducted in a one to two-year timeframe.
2. Compose a persuasive and defensible introduction to a research plan that includes a review of the literature, a statement of the research problem, the rationale for conducting the proposed research, and a discussion of the significance of finding an answer to the research question.
3. When presented with a specific research question and pertinent information, select the study design most suitable for answering the research question given the research environment.
4. Accurately identify exposure and comparison groups for the research plan when required by the choice of study design.
5. Establish the study observation period required to answer a specific research question.



ASHP Foundation Research Boot Camp

6. Identify the characteristics and number of research subjects that will meet the requirements of the research design for a specific research question.
7. For a specific research plan, define the research subjects such that the study results meet a balance of the requirements of internal and external validity.
8. For a specific research plan, define a feasible sampling framework for the research subjects that meets the requirements of internal and external validity.
9. Identify accessible resources for the calculation of power requirements for a specific research study.
10. Create a strategy for the identification and recruitment of subjects for a specific research study.
11. For a specific research plan, create a system of measurements that will accurately and precisely answer the study question(s).
12. For a particular research plan, identify and operationalize primary and secondary outcomes that are adequate to answer the research question.
13. When given a research plan, identify when the study design contains potential selection and/or measurement bias.
14. When given a particular research plan, operationalize the measurement of variables that could confound the research results.
15. When given a particular research plan in which there is potential for measurement bias in the study design, develop methods for avoiding it.
16. When designing a specific experimental research study, create a feasible, reproducible, and testable intervention.
17. When designing a specific experimental research study, create a practical and effective strategy to monitor compliance with the intervention.
18. When designing a specific research study plan, create a strategy to assess the effects of attrition bias.
19. When creating the plan for a specific quantitative research study, generate an appropriate strategy for the statistical analysis of the study's data.
20. Generate a plan for the implementation of a specific practice-based research study.
21. For a specific practice-based research study, create a timeline that includes significant milestones for the implementation of the study.
22. Identify resources required for the implementation of a specific practice-based research study.

The Research Boot Camp will provide an opportunity for nine new pharmacist researchers to participate in a comprehensive distance education and experiential program. Participants will develop a research idea into a well-structured research plan to be executed following program completion. Applicants to this program should demonstrate motivation to acquire research methods skills to conduct rigorous practice-based research and should include an initial research idea.

A. Distance Education

Participants will complete a sequence of pre-readings, 13 1-hour Web-based lectures and listserv discussions in order to acquire comprehension level learning essential to completion of research plan development work required for the experiential phase *and* to enable development of the research plan during the experiential phase.

Topics covered will include:

1. Identifying a practice-based research topic and framing the research question
2. Conduct of a comprehensive literature search focused on the research question
3. Development of a research plan introduction
4. Choice of study designs (2 hours)
5. Issues in identifying subjects – generalizability
6. Consideration of bias in research design
7. Introduction to measurement (2 hours)



ASHP Foundation Research Boot Camp

8. Design and implementation of interventions
9. Introduction to data management and analysis
10. Introduction to statistical analysis (2 hours)

Upon completion of the Distance Education Phase, participants will have developed a draft research question for the proposed study, and reviewed the literature and developed a summary that addresses the specific topic area as well as research methods and measurements employed in previous research on the topic.

B. Experiential Education

Over a 3-day period (May 24 through May 26, 2010), at the ASHP Foundation offices in Bethesda, Maryland, participants will convene with 4 experienced researchers to develop an executable research study plan. Work on the development of plans will be sequential with each new task introduced by a mini-lecture and a question and answer session to help participants recall previous learning and address outstanding questions. Participants will be challenged to write a plan segment, share it with members of their group, and revise the plan segment based on participant and faculty feedback until the plan is completed.

On-site training learning topics will include:

1. Development of the research question
2. Writing the introduction of the research plan
3. Identifying the study's design
4. Describing the study sample
5. Identifying study measurements
6. Describing study interventions
7. Identifying the study's analytic approach
8. Discussion of practical aspects of study completion

C. Research Conduct

Upon completion of the Distance Education and Experiential phases, participants must implement and complete the proposed research under the guidance of the local mentor. The participant's sponsoring institution must agree to provide adequate seed support and/or resources to enable completion of the proposed research. Progress on completion of the study will be monitored through the established quarterly report process used by the ASHP Foundation to monitor all of its research grant programs. Within 18 months of completion of the first two phases, participants will be required to submit the study findings to a national or international biomedical meeting and within six months of study completion they must submit a manuscript to a peer-reviewed scientific journal.

II. ELIGIBILITY

Successful applicants will be pharmacists with an active pharmacy practice who demonstrate motivation to acquire research methods skills to conduct rigorous practice-based research. Pharmacists with faculty appointments and non-academic pharmacists are encouraged to apply. Individuals will not be eligible if they have completed a formal education program that provided strong research training (e.g., M.S., Ph.D.). Applicants will be expected to document their mastery of the following research-related tasks prior to starting the Boot Camp program:



ASHP Foundation Research Boot Camp

- Ability to conduct efficient and effective literature searches to respond to clinical questions;
- Critical literature appraisal as employed in routine clinical practice;
- Understanding of biostatistics when encountered in the review of research literature (this does not presume the ability to apply biostatistics in the conduct of research); and
- Documented completion of a program in research ethics.

Applicants will be required to submit an initial research idea pertinent to their clinical practice area. Support from the applicant's home institution and committed local mentoring are required.

Other factors that will be considered in the application review process include: previous project management experience, demonstration of analytical and critical thinking skills, authorship of peer-reviewed publications (preferred), and existence of an established network of practitioners with a shared interest in conducting research. Applicants will be required to demonstrate these qualifications through a provision of specific professional experience information, a personal statement, and letters of support.

III. APPLICATION PROCESS/SELECTION CRITERIA

Applications will be reviewed based on the following criteria.

Criterion	Points
Practice experience	10
Project management experience	10
Demonstration of analytical and critical thinking skills	10
Peer-reviewed publications	5
Applicant training expectations	15
Local mentoring	15
Evidence of availability of a network of researchers with common interest	10
Institutional support	15
Research idea	10
TOTAL	100

Applications will be accepted between August 24, 2009 and November 6, 2009. The deadline for the ASHP Foundation to receive applications is 5 p.m. E.T. on November 6, 2009. Applicants will be notified of the outcome of the selection process by December 15, 2009. Distance education will occur between January 2010 and mid-May 2010. Experiential education will occur from May 24th through May 26th, 2010.



ASHP Foundation Research Boot Camp

IV. BOOT CAMP ADMINISTRATION

The Research Boot Camp is administered by the ASHP Research and Education Foundation, 7272 Wisconsin Avenue, Bethesda, Maryland 20814. The Research Boot Camp is sponsored by an educational donation provided by Amgen. Reimbursement policies applying to this ASHP Foundation program include the following:

- The Boot Camp training opportunity is awarded to an individual participant.
- No stipend or honorarium will be awarded to the participant.
- The participant is responsible for providing their transportation to the experiential site and lodging.
- The ASHP Foundation will provide group breakfasts, lunches, and one (1) dinner.
- No per diem payments will be provided by the ASHP Research and Education Foundation.
- If the participant must cancel his or her participation, he or she must notify the ASHP Foundation at least four weeks in advance of the starting date of the experiential portion of the program.
- The participant will be required to attend all sessions of the program and complete the post-training requirements and program evaluation form.

V. ITEMIZED INSTRUCTIONS FOR APPLICATION COMPLETION

**APPLICATIONS THAT DO NOT STRICTLY COMPLY WITH THE
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RETURNED WITHOUT REVIEW**

1. Self-explanatory. If the applicant checks the home address as the primary address, all non-electronic correspondence regarding this program will be mailed to this address.
2. In chronological order list the name, degree awarded, and years of matriculation for all colleges and universities attended by the applicant. If a degree was not awarded, use N/A to indicate not applicable. **NOTE:** Individuals will not be eligible if they have completed a formal education program that provided strong research training (e.g., M.S., Ph.D.). "See CV" is not an acceptable response for completion of this section.
3. In chronological order, list the institution name, program type (e.g., pharmacy PGY2 oncology residency), and years of participation for all post-graduate, non-degree training programs participated in by the applicant. **NOTE:** "See CV" is not an acceptable response for completion of this section.
4. In reverse chronological order, list the institution name, position title, and years of service for the three (3) most recent pharmacist positions held by the applicant. Faculty appointments should be included in this section. **NOTE:** "See CV" is not an



ASHP Foundation Research Boot Camp

- acceptable response for completion of this section.
5. Provide pharmacist licensure information for the applicant including jurisdiction license number, and expiration date. **NOTE:** “See CV” is not an acceptable response for completion of this section.
 6. (A-E) In the sections provided, provide a brief statement that describes the applicants experience with:
 - Conducting literature searches to answer clinical questions
 - Use of critically appraised literature in routine clinical practice
 - Interpreting and using statistical-based results encountered in the biomedical literature (i.e., courses taken, formal experience, etc.)
(This does not necessarily mean that you have to know how to apply biostatistics when conducting research.)
 - Project management and team collaboration
 - Practicing according to HIPAA regulations

USE ONLY THE SPACE PROVIDED TO COMPLETE RESPONSES. DO NOT ATTACH ADDITIONAL PAGES TO COMPLETE RESPONSES.

Along with providing this statement, use the spaces provided to evaluate the applicant’s abilities in each of these areas using the following rating scale:

1	2	3	4	5
No Experience	Below Average	Average	Above Average	Excellent

7. (A-C) Provide a brief statement that that addresses each of the following areas:
 - Interest in and aptitude for conducting research
 - Expectations of the Research Boot Camp
 - Plans for application of research skills upon completion of the Research Boot Camp

USE ONLY THE SPACE PROVIDED TO COMPLETE RESPONSES. DO NOT ATTACH ADDITIONAL PAGES TO COMPLETE RESPONSES.

8. Provide a brief statement of 200 words or less regarding the applicant’s research idea. This should include a single statement of the main purpose of the research.
USE ONLY THE SPACE PROVIDED TO COMPLETE RESPONSES. DO NOT ATTACH ADDITIONAL PAGES TO COMPLETE RESPONSES.

9. Self-explanatory

NOTE: The research advisor must be committed to the applicant’s development of research skills and should be willing to serve as advisor throughout the period of activity for the Research Boot Camp including the period of activity for the research that emanates from the applicant’s participation in the Research Boot Camp.

10. **The following additional documents are required for completion of the application:**

A. Cover letter



ASHP Foundation Research Boot Camp

- B. Curricula vitae for the applicant and the research advisor
NOTE: Curricula vitae must be limited to four (4) pages for each and must be submitted in the format provided in the U.S. Department of Health and Human Services PHS 398 forms. (For an example: <http://grants2.nih.gov/grants/funding/phs398/biosketch.pdf>).
 - C. Letters of support from the applicant's dean and/or pharmacy director.
NOTE: Along with providing support for the application and the applicant's ability to meet the entrance capabilities, this letter should also indicate that the School/College of Pharmacy or Department of Pharmacy will provide funds and/or resources that will enable completion of the proposed research over an 18-month period after completion of the Research Boot Camp. The type of resources should be described completely.
 - D. Letter of support from the applicant's research advisor
NOTE: This letter should address the advisor's commitment to the applicant's development as a researcher and execution of the proposed research. The advisor should also describe their ability to serve as a research advisor and attest to the applicant's ability to meet the entrance requirements.
 - E. Documentation of the applicant's completion of a program in research ethics.
 - F. A writing sample for which the applicant was the first author. (Examples include published articles, protocols or policies, formulary reviews, or detailed practice-related memoranda).
- 11. The applicant, research advisor, and dean or pharmacy director must sign the application to certify and accept the following:**
- A. The statements contained in this application are true and complete to the best of their knowledge.
 - B. The research advisor is committed to the applicant's development of research skills and will serve as advisor throughout the period of activity for the Research Boot Camp including the period of activity for the research that emanates from the applicant's participation in the Research Boot Camp.
 - C. The applicant's sponsoring institution will provide will provide seed funds and/or resources that will enable completion of the proposed research over an 18-month period after completion of the Research Boot Camp.
 - D. Within 60 days of completion of the Research Boot Camp, the applicant will submit a research project plan that adheres to the ASHP Foundation's grant instructions.
 - E. The ASHP Foundation requires submission of the study results for presentation at a national or international scientific meeting.
 - F. The ASHP Foundation requires submission of study results to a peer-reviewed biomedical journal within six (6) months of study completion the findings of the above named study must be submitted to a peer-reviewed journal for publication. If the findings of the study are published in a pharmacy journal, the *American Journal of Health-System Pharmacy* retains the right of first refusal for publications that emanate from this ASHP Foundation-supported study.
 - G. All presentations, publications, and other communications regarding this study must include the following acknowledgement: "Completion of this study was



ASHP Foundation Research Boot Camp

supported by the ASHP Research and Education Foundation.” This **must** be stated in the body (i.e., in the author identification page) of all manuscripts submitted for publication.

Six (6) copies (original plus five) of the completed seven-page application form, with all attachments, must be **received by mail at the ASHP Foundation by Close of Business November 6, 2009 to be considered for the 2010 Research Boot Camp.** Electronic (i.e., e-mail) submission of applications is not allowed.

Attn: Daniel J. Cobaugh, Pharm.D., FAACT
ASHP Research and Education Foundation
7272 Wisconsin Avenue
Bethesda, MD 20814

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