

PROMETRIC



**A PROFESSIONAL SOLUTION FOR EXAMINATION
DEVELOPMENT SERVICES FOR:**

**THE AMERICAN COLLEGE OF POULTRY
VETERINARIANS**

**The Right
Expertise**



Trusted Provider of Market Leading Test Development and Delivery Solutions

March 13, 2012

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EXECUTIVE SUMMARY

Prometric is pleased to present this proposal to the American College of Poultry Veterinarians (ACPV) for professional test development services. As a trusted provider of a wide range of testing and assessment solutions, we fully support the goals of the ACPV certification program and recognize the significant effort and investments that you are making to maintain it. We also fully understand the field of veterinary medicine from our experiences with the American Veterinary Medical Association.

At this time, we understand that you are interested in conducting focused procedures to support the ongoing validity of your certification examination. Specifically, we recognize that you require an experienced, qualified partner to help you carry out the following tasks in the immediate future:

1. **comprehensive analysis of item performance**, generating statistics to enable further test development activities;
2. **standard setting procedures** to formulate evidence-backed passing score recommendations for the different parts of your current examination; and
3. psychometrically sound **equating processes** to ensure that future forms of your exam are equivalent to the standard setting form.

We also understand that you are seeking assistance in conducting a **job analysis study** within the next two years to update and refine the knowledge, skills and abilities that are required for an ACPV certificant. With our experience as a test development pioneer and leader, we have the necessary insight to perform each of these tasks—following a consultative process that is tailored to your needs.

OUR DEFINED SOLUTION CLEARLY ADDRESSES YOUR GOALS

A natural step in a program's evolution is the refinement and enhancement of test development processes. This proposal anticipates your organizational desire to create even greater value in ACPV certification. As such, we have included recommendations and solutions to leverage the efforts already in place and add further value to the psychometric validity and legal defensibility of your examinations. You will recognize that we are committed to the *provision of key value-added service components*, such as:

Our f experience, resources and technology will ideally complement ACPV's objective of maximizing the integrity of your exams.

- + proven practices backed by the authorities of the testing industry—**assuring the ACPV that all test development activities are designed to yield quality results;**
- + a convenient, comprehensive standard setting solution—**providing legally defensible recommendations for passing scores for the different parts of your examination;**
- + a full job analysis based on a carefully crafted survey and expert analysis—**ensuring relevancy and currency of examination content for use by the ACPV;**
- + the dedication of highly qualified psychometric experts—**using their skills and knowledge to verify the validity and reliability of your examinations;** and
- + an available, responsive, client-focused support team—**ensuring exceptional operational performance and open communications at all levels of your organization.**

Thank you for considering our solution for taking your program to the next level. With Prometric, you can look forward to a relationship with an experienced and trusted test development partner.

OUR TEST DEVELOPMENT SERVICES

Prometric is looking forward to working with the ACPV to perform your desired test development tasks. Our vast experience and expertise in helping clients develop sound, valid examinations spans several decades and is a major factor of our strength. Our services, led by our in-house psychometricians and test development professionals, include conducting job analyses, writing and reviewing examination items, establishing and maintaining item banks and assembling test forms. To meet the ACPV's specific needs, our test development experts will apply proven test development services that are customized for you.

We stand behind our services and the exams that result from them. All of Prometric's test development practices follow strict, documented procedures that meet the high standards developed by our parent company Educational Testing Service (ETS) and embodied in the *ETS Standards for Quality and Fairness*. The *ETS Standards* reflect the *Standards for Educational and Psychological Testing*, a technical guide that provides criteria for the evaluation of tests, testing practices, and the effects of test use. The *Standards* were developed jointly by leading bodies in the assessment field and have come to define the necessary components of quality testing.

All of Prometric's test development practices follow documented procedures that meet the high standards embodied in the *ETS Standards for Quality and Fairness*.

What does this mean for the ACPV? It means that any and all test development performed by Prometric will conform to established standards recognized in the testing industry to ensure the utmost quality in terms of fairness, uses and protection of information, validity, assessment development, reliability, assessment use, reporting, and test takers rights. In short, the ACPV will come away from the test development process with examinations that are representative measures of the knowledge, skills and abilities required of competent members of your profession.

WE HAVE CUSTOMIZED AN ACPV SERVICE SOLUTION

Prometric will take an active role in ensuring the legal defensibility and psychometric soundness of your examinations by executing the four main services that you require: 1) item analysis; 2) standard setting; 3) form equating; and 4) job analysis. We follow proven procedures for delivering these services that will result in numerous benefits for the ACPV, as described in this section of our proposal.

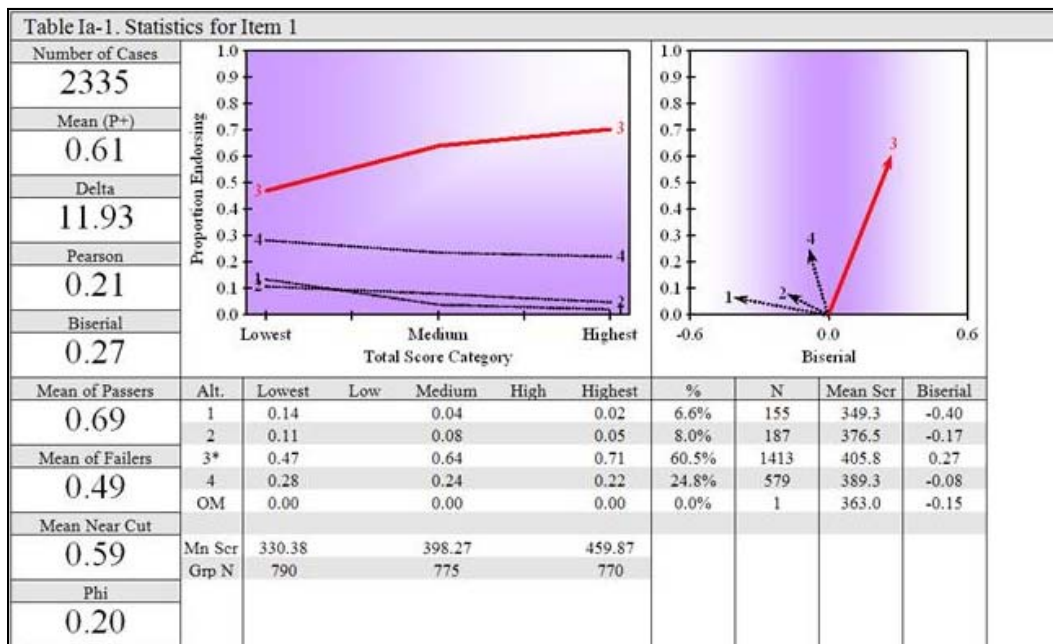
Psychometric Analysis Provides Valuable Statistical Information

Analyzing candidate responses to test items enables our psychometricians to generate useful statistics on item and exam performance. Since regular item analysis is a key piece to maintaining a test's validity, Prometric can provide statistical analyses of item, exam and candidate performance to support this effort. Performing classical item analysis enables provides us and the ACPV with data necessary to:

- + gauge item difficulty;
- + see how a candidate's performance on an item indicates performance on the test (discrimination);
- + establish parameters for items that help them to be assigned to test forms appropriately; and
- + **execute sophisticated standard setting and form equating procedures.**

The analytical software that we use summarizes a wide range of characteristics of each item. The sample below shows a full statistical breakdown of one item’s performance.

Sample Classical Item Analysis



The classical statistics depicted in the various tables and graphs include:

- + the proportion of candidates answering each question correctly (difficulty);
- + the correlation between the question score (correct or incorrect) and the total test score; and
- + the correlation between selecting a particular incorrect answer and the total test score.

To complement these item-level statistics, our analysis also generates useful statistics at the exam level, such as:

- + the average score for the total test and each of its subsections;
- + the pass ratio for the test; and
- + the reliability of the test.

With all of our psychometric services, we provide psychometric reports that detail the statistical performance of items and examinations according to industry-recognized objectives. The reports that we provide will document many important item and examination statistics that are generated from actual results data. **Most importantly, we provide our narrative interpretation of the statistics** so that you do not have to wade through volumes of tables to find essential information.

In addition to generating reports, the item analysis software we use also triggers automated “flags” that indicate problematic item performance. When these are encountered, we can conduct dedicated telephone conferences with your staff to recommend corrective measures for subsequent test development activities. These phone calls (called “problem item notification” or “PIN” calls) are especially helpful for efficiently addressing issues with individual items without going through the entire item development process.

Our Proposed Standard Setting Methodologies Benefit the ACPV

At the request of the ACPV, Prometric will use the statistical information we produce to conduct standard setting studies with the ACPV and approved SMEs. Standard setting studies are performed to provide expert assistance in establishing and validating appropriate minimum passing scores, also called “cut scores.” Choosing the exact cut scores is a policy decision of the ACPV, but it must be defensible because of the societal and personal consequences that flow from it. To be the most defensible, the cut score should be directly based on the expected or actual test performance of a minimally competent candidate.

While the majority of exams use multiple-choice items, it is increasingly popular to incorporate non-traditional item types into licensure or certification examinations. Prometric provides consultation with regard to setting standards for exams using several different item types, such as multiple-choice, constructed response and essay examinations. The ACPV certification exam is an example of one such test that uses multiple item types. To arrive at defensible passing score recommendations for tests such as yours, Prometric provides a variety of standard setting services, all of which meet the professional approval of measurement standards organizations.

Based on our review of your program, we recommend using two different standard setting approaches:

1. **For the multiple-choice segments**, we propose to conduct standard setting study using a modified Angoff method. This method that has proven to be a highly successful way to set meaningful passing scores which are supported by a select panel of SMEs who follow a documented procedure to provide recommendations for an exam’s passing score.
2. **Our approach to standard setting for constructed response items** is a holistic evaluation of the candidate submissions as to whether they represent a passing level or a failing level. We have experience using this approach for several of our clients. The results of this process provide a framework for setting the standard of performance for these item types.

Each of these standard setting models is described in greater detail below.

Proven Standard Setting Method for Multiple-choice Exam Section

For the ACPV, we strongly support using a modified Angoff standard setting method for the multiple-choice exam component. By this method, a select panel of 10 to 12 subject-matter experts attending the item review session will follow a documented procedure to provide recommendations for an exam’s passing score, as described in the steps below.

Standard Setting Step 1: Prometric Prepares the SMEs

The first step in conducting a standard setting study of this type is preparing the SMEs (recruited by the ACPV) who will participate. Prometric will provide informational materials to all prospective panel members so that they can familiarize themselves with the standard setting procedure and exam content outline prior to the study. In the interest of fairness and equity, we recommend that the panelists be a diverse mix in terms of geographic background, experience and work settings.

Standard Setting Step 2: SMEs Rate Test Items

During the study, panel participants will be asked to provide ratings of exam items to judge how many out of 100 minimally acceptable first-time examination candidates will be able to answer each item correctly. To acquaint the study participants with the process, we will walk them through an activity in which they rate a sample group of 10 to 15 unrelated test questions (not

from your exams). Following the rating of all sample items, each participant’s rating is discussed. Actual pass statistics for each sample item are given to the panel to aid the discussion.

Panel participants will then rate items from your actual exams as to how many of 100 minimally competent candidates would answer each item correctly. To support objectivity, no key is provided and there is no discussion among committee members. Following the rating, an important overall question will be asked of the panel: “How many first-time candidates would you expect to pass this test?” The purpose of this question is to permit, if necessary, a compromise between the criterion-referenced cut score—which will be arrived at by performing a statistical analysis of the participants’ ratings—and an acceptable percentage of passing candidates. This compromise is known as a **Beuk adjustment**.

Standard Setting Step 3: We Perform Statistical Analysis of Ratings

After completing each set of ratings, each panel member’s ratings are entered into a spreadsheet and their individual recommendations for the cut score are computed. Because we use the Angoff method so frequently, we have created an efficient process that enables us to enter the ratings at the meeting and provide the panel with immediate feedback. The data from the ratings will be given back to each panel member as a summary feedback report containing:

- + the correct answer option (key) for each item;
- + a frequency distribution showing panel members rated each item; and
- + for every fifth item, the actual percentage of candidates answering the item correctly, if past performance statistics are available.

An example of how this data is presented is shown in the following table.

SAMPLE SUMMARY FEEDBACK REPORT OF PANEL RATINGS							
Item	Key	0 to 20%	21 to 40%	41 to 60%	61 to 80%	81 to 100%	% Correct
1	A	0	1	3	3	5	77%
2	B	0	2	9	1	0	
3	A	0	2	5	3	2	
4	C	0	2	4	6	0	
5	B	0	1	4	3	4	89%
6	B	1	1	2	4	4	
7	B	0	0	4	4	4	
8	C	0	4	4	2	2	
9	B	0	0	1	5	6	
10	A	0	2	5	5	0	58%

These recommendations are used to determine the group’s average cut score recommendation as well as the Beuk adjustment. The study participants’ ratings will be adjusted according to an assigned weighting mechanism and standard error of judgment (SEJ) will be taken into account, resulting in a recommended range for the cut score. If the judges are more in agreement as to what they think the passing score should be, the adjustment is made in the direction of the passing score judgments. If the judges agree more with what the pass rate should be, the adjustment is made in the direction of the pass rate (e.g., Beuk adjustment).

Standard Setting Step 4: ACPV is Provided with Cut Score Recommendations

Upon completion of the statistical analysis, we will present your decision makers with the panel’s recommended passing score as well as seven possible adjustments—six based on the SEJ and one based on the Beuk compromise procedure. A sample decision table with the possible cut score choices is shown below.

SAMPLE CUT SCORE RECOMMENDATIONS			
Cut or Adjustment	Raw Score	% of Test Points	% of Candidates Passing
Cut + 3 SEj Adjustment	49	82%	69%
Cut + 2 SEj Adjustment	47	78%	82%
Cut + 1 SEj Adjustment	46	77%	88%
Panel Recommended Cut	45	75%	91%
Cut – 1 SEj Adjustment	43	72%	96%
Cut – 2 SEj Adjustment	42	70%	98%
Cut – 3 SEj Adjustment	40	67%	99%
Beuk Compromise	47	78%	82%

Prior to the release of test scores to candidates, your staff will make a decision on the passing score for the examination. Since it is the ACPV who has the responsibility to the organization and the public for the veracity of the credential, we support you in this process, but the final cut score decision is to be made by your staff and not Prometric. We will discuss the benefits and consequences of setting the passing score at the level recommended by the panel or at one of the other adjustment levels.

Standard Setting Process for Constructed Response Section

Prometric uses a holistic approach for setting a cut score for constructed response item types. Just as the standard setting for the multiple-choice component begins with the development of the definition of the minimally qualified candidate, the panel describes the expectations for a minimally qualified candidate in relationship to the items to be evaluated. The scoring rubric is explained to the panel so that they have a sense of what the item developers are expecting in relationship to the items but they are not expected to re-evaluate the responses or to develop a score for the responses they are rating.

We select a representative sample of candidate responses that includes passing, borderline and failing level of performances, which are then reviewed and evaluated by the panel of standard setting judges. Their evaluation is based on the candidate’s full performance. Instead of an item-by-item review, the panel members approach the performance from a pass-fail perspective based on all of the items. The results of this holistic evaluation along with the scores associated with the items are entered into a proprietary computer program that uses a monotonic increasing regression function to determine each judge’s recommended cut score and the panel’s average cut score. This data analysis technique fits the monotonic increasing regression function to data where the independent variable is ordinal (i.e. the latent total score of each candidate) and the dependent variable is binary (i.e. the classification of either acceptable [1] or unacceptable [0]). The results of this analysis are then input into a spreadsheet that calculates the possible adjustments for consideration by the decision-making panel. We have used this process for many years with great success, and we welcome the opportunity to discuss our experience with you.

Test Forms are Equated to Ensure Comparable Difficulty

In subsequent test development cycles, we will equate the test forms rather than conducting full standard setting procedures. Equating is a statistical procedure that aligns the forms in terms of the difficulty of passing that version of the test. This process adjusts for differences in test form difficulty so that scores and pass rates from different test forms are comparable. Prometric uses several valid equating methods that employ varying statistical models. Using our expertise in this area, our staff will perform the necessary equating tasks to make sure your examination is fair for every candidate who takes it.

Job Analysis Defines the Skills to be Tested

Prometric understands that ACPV is considering conducting a job analysis in the near future. As the recognized industry leader in job analysis study administration, we offer substantial expertise in performing survey-based empirical job analyses. In fact, our experienced staff conducts multiple studies across many professional areas each year. We welcome this opportunity to discuss our job analysis process—and the quality results that our clients experience from working with us.

For your purposes of maintaining your certification examination, your job analysis should identify important tasks, knowledge and skills necessary for competent performance in your profession. We propose to uncover this information through the structured surveying of a large sample set of subject matter experts to determine the relevant areas of expertise of the practice. Each of the activities in our solution serves a key purpose in planning the survey, administering it, analyzing its results, or using its results to create a valid foundation for a meaningful exam. Prometric's aim throughout the project will be the same as yours: to discern the tasks identified as required for ACPV certification. **The ultimate benefit of our job analysis will be the establishment of precise specifications that support and lend credibility for your examinations.**

The job analysis we conduct for the ACPV will obtain descriptive information about the tasks performed in your profession and the essential knowledge and skills needed to competently perform those tasks.

In our experience, the success of a job analysis project requires both a sound research methodology and a process that obtains high quality information in an enjoyable and educational way for participants. Prometric's approach to conducting a job analysis begins with selecting the most appropriate method—or combinations of analysis methods—and incorporates rigorous standards. Selecting the proper techniques and complying with industry standards are essential for a comprehensive, reliable outcome. **We always follow well-established, defensible industry standards** such as:

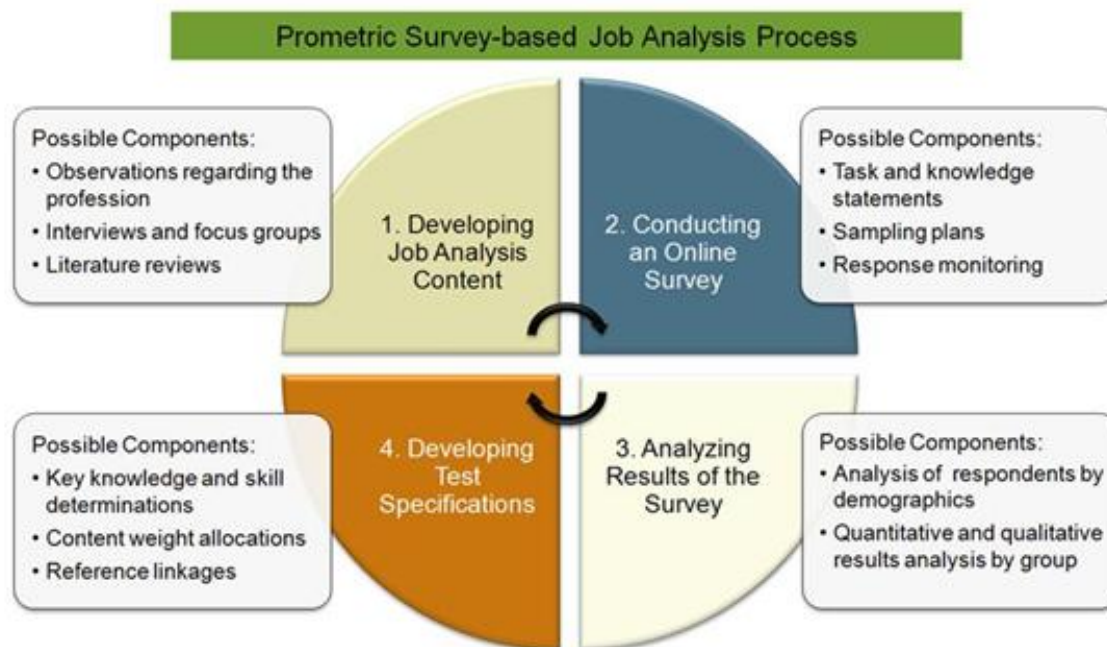


These standards influence how a job analysis is conducted by outlining specific tasks, including:

- + defining the content clearly, which includes descriptions of important knowledge areas or skills that are associated with competent performance in a specific profession or occupation;

- + justifying important content of a profession or occupation;
- + using rating scales to analyze the content (e.g., importance and frequency);
- + recruiting qualified subject matter experts (representative experts);
- + sampling a diverse (representative) mix of individuals from major practice areas, job titles, work settings, geographic locations, ethnic backgrounds, genders and work experiences;
- + developing specifications for the construction of the examination which includes content weighting (determining the percentage of test items allocated to specific content areas); and
- + updating the job analysis periodically, typically every three to five years depending on the dynamic nature of the profession.

For your specific needs, **we propose to conduct a survey-based job analysis.** This solution integrates the information we obtain from external reviews of your profession with direct input received from a diverse sample of subject matter experts. In summary, it will provide the ACPV with the most all-inclusive set of base knowledge about your profession, which we can then analyze with you to form the foundation of your certification examination. The chart below delineates the core tasks in our survey-based job analysis approach.



This approach reflects a methodical, linear job analysis process which is founded in psychometrically valid methods. While our proposed process will be customized to achieve your unique objectives, it will consist of the following core activities outlined in the table on the following page.

PROMETRIC'S JOB ANALYSIS PROCESS	
Activity 1	Conduct a Planning Meeting
Activity 2	Develop a Preliminary List of Tasks and Knowledge for Poultry Veterinarians
Activity 3	Review the Preliminary List with an ACPV-approved Task Force
Activity 4	Construct a Draft Job Analysis Survey
Activity 5	Conduct a Pilot Survey
Activity 6	Administer the Survey to the Full Subject Matter Expert Population
Activity 7	Analyze Survey Response Data
Activity 8	Update Test Specifications with the ACPV
Activity 9	Prepare and Submit the Final Job Analysis Report
Activity 10	Recode Existing Items to Match Updated Test Specifications

Each of these steps is described in greater detail below.

Job Analysis Activity 1: Conduct a Planning Meeting

Objective: Laying the groundwork for the job analysis project and communicating roles and tasks.

To achieve optimal project outcomes and clearly define expectations, an in-person meeting will be arranged with ACPV representatives to review and finalize project plans. This discussion will address key issues, including:

- + a review of the job analysis scope of work, including the timeline and potential meeting dates;
- + survey design issues (survey-based only), including Internet delivery, specific survey components and respondent demographic information that should be collected for the surveys (e.g., geographic region, gender, ethnicity, etc.);
- + the development of a survey sampling plan, including a communication strategy review that alerts your constituents to the upcoming survey and solicits their support; and
- + strategies, such as publishing articles in organization newsletters about the job analysis and/or inclusion of incentives, to achieve a response rate that is satisfactory to support survey requirements.

While we recommend an in-person meeting, we will gladly schedule a Web conference if it would work better for participants.

Job Analysis Activity 2: Develop a Preliminary List of Tasks and Knowledge for Poultry Veterinarians

Objective: Gathering information for the basis of the job analysis survey.

Based on Prometric’s review of available information regarding your profession, we will develop a preliminary list of tasks and knowledge associated with it. We use several information sources when developing these preliminary lists, which may include previous job analyses and body of knowledge, job descriptions and/or other relevant information provided by the ACPV.

Job Analysis Activity 3: Review the Preliminary List with an ACPV-approved Task Force

Objective: Designing the job analysis survey.

A task force meeting is the next step. It is intended to allow a panel of 10 to 15 SMEs to review and revise the preliminary list of knowledge and skills important for competent performance as a poultry veterinarian.

The task force will be responsible for defining the domains that reflect the major content areas important to the work performed by professionals in your field. Domains (also known as topic areas, content areas or dimensions) represent the principal areas of job responsibility and knowledge needed to perform one's professional responsibilities. After defining the domains, each domain will be described in terms of specific tasks—the activities performed as part of important job responsibilities—and the knowledge needed to perform these tasks. Once domains are adequately defined and described, Prometric staff will facilitate a discussion on the rating scale (or scales) that is (are) appropriate for inclusion on the job analysis survey (e.g., importance) and a review of the background information survey section.

Job Analysis Activity 4: Construct a Draft Job Analysis Survey

Objective: Creating the job analysis survey.

Using the results of the task force meeting, as well as other job-related resources (such as a previous job analysis), Prometric will develop a draft version of the online job analysis survey to be sent to a wide range of SMEs. It is the results of these surveys that will provide the chief information toward creating the test specifications. A survey typically consists of the following sections:

1. **Background Information:** This section will consist of demographic questions describing survey respondents for the job analysis (e.g., geographic location, years experience in the profession, gender and educational background).
2. **Tasks:** Participants will be instructed to rate the importance of the tasks as they relate to the work performed by employees in his/her field.
3. **Knowledge:** Participants will be instructed to rate the importance of the knowledge/skill statements as they relate to the work performed by those in his/her field.

Both the tasks and knowledge components of the survey will include content coverage questions to determine how well the statements within each of the major domains cover the important aspects of the domain. Responses to this provide an indication of the adequacy (comprehensiveness) of the content. The scale values typically range along a five-point continuum (e.g., very poorly; poorly; adequately; well; very well).

4. **Recommendations for Test Content:** This section of the survey will include questions about the percentage of test questions (summing to 100%) that should be included from each of the knowledge/skill domains for the examination. This information may be used by the test specifications committee as a decision-making aid in determining how much emphasis the knowledge domains should receive in the test content outline for the certification examinations.
5. **Write-In Comments:** Depending on the goals of the job analysis, survey participants may be asked to share their perspectives on professional development needs, anticipated changes in the profession or other areas.

An additional survey section may also be included to address other areas of interest or concern to the ACPV. This optional section may include questions regarding professional education opportunities, the value of the certification exams or any other topic of that you choose.

Job Analysis Activity 5: Conduct a Pilot Survey

Objective: Testing the job analysis survey prior to dissemination to participants.

A pilot test of the survey will be administered to approximately 15 SMEs to determine if the survey directions and rating scales are clear and easy to follow and if the task and knowledge statements are clearly written and comprehensive. The Prometric team will work with you to finalize the wording of the survey based on the information provided by the pilot respondents.

The Pilot Administration is a Vital Step in the Job Analysis Process

The purpose of a small-scale pilot administration of the survey is to have industry professionals who have had no previous involvement in the development of the survey review its. Prometric often asks the initial task force to nominate subject matter experts like themselves to review the pilot survey version. Alternatively, the ACPV may prefer to nominate key stakeholders to serve as the pilot responders.

Pilot participants are asked to evaluate the survey content for the following:

- + **Clarity:** Are the domains succinct? Are the statements clearly worded?
- + **Relevance:** Are the statements relevant to the work performed by those in the profession?
- + **Redundancy:** Are the statements unique and discrete?
- + **Omissions:** Have any important statements been omitted?
- + **Comprehensiveness:** Are the domains and statements comprehensive and representative?

The survey review process serves as a “check and balance” on the judgments of the task force committee and reduces the likelihood that irrelevant areas will be considered for inclusion in test specifications. Structurally, it is critical for the survey to be clearly worded and comprehensive in content, to ensure meaningful interpretation of survey results. Also, it is important that surveys are easy for respondents to complete in a reasonable amount of time to prevent survey burnout among participants. Overall, a well-designed survey promotes high response rates, reinforcing the importance of survey review activities.

Job Analysis Activity 6: Administer the Survey to the Subject Matter Expert Population

Objective: Gathering job information from a wide range of industry participants.

Prometric will publish the survey and provide the survey URL to participants (from the <<LOB>> sector) via e-mail. To encourage high survey response rates, we also recommend that survey respondents be sent a reminder e-mail approximately two weeks after the surveys are disseminated. Additional reminders may be sent depending on response rates, particularly from critical subgroups.

Prometric is very experienced with developing and disseminating job analysis surveys electronically and our system uses an automated data collection process, allowing us to provide you with accurate and real-

time results. The use of a survey is also an efficient and cost-effective method of obtaining input from large numbers of SMEs and makes it possible for ratings to be analyzed separately by appropriate respondent subgroups.

We Recommend Using Strategies to Support High Response Rates

We highly recommend implementing proven strategies to achieve high survey response rates. Our staff regularly uses the following tactics to get the most responses possible:

1. **Real time monitoring of survey responses:** Our survey system features a Web link to monitor the survey results in real time. If the response rate is undesirable or a specific group is underrepresented, Prometric can recommend a number of strategies to increase the survey response rates or representation of a group such as sending targeted e-mail reminders to the potential survey participants, extending the closing date of the survey, introducing incentives and telephoning potential survey participants.
2. **Survey completion incentives:** Prometric recommends that clients use incentives for survey completion. Often, if a survey participant completes a survey, they are entered into a random drawing to potentially win a number of items such as course/conference waivers, books and/or gift cards. In some cases, we recommend that organizations award continuing education credits for those who complete the survey. As an example, for organizations that require continuing education credits for credential maintenance, we recommend at least two hours of credit for people that complete the survey.
3. **Publicizing the survey to your SME base:** We will coordinate with you to have the survey Web link included in your publication material or make the potential survey participants aware of the upcoming survey in your publications (e.g., monthly newsletter, Web page, etc.).
4. **Telephone and Online Survey Support:** Telephone and online support is provided for survey takers who experience technical difficulties or other questions about the survey. We have found that addressing these technical difficulties and/or questions can also ensure high response rates.

We will help ACPV maximize the survey responses—the primary source of information from the job analysis.

Prometric will thoroughly discuss these options with the ACPV to develop the best strategy for maximizing the response rate.

Job Analysis Activity 7: Analyze Survey Response Data

Objective: Interpreting survey responses to guide the design of the examination.

After the closing of the survey, Prometric staff will meet with ACPV representatives (content review committee) to discuss the delineation of critical subgroup responses. Typical subgroups include specific job titles, years of experience, gender, or geographic distribution. The background information questions will be specific to your needs, which we will have identified during the planning meeting.

In addition to running comparative analysis, Prometric will also provide descriptive statistics (means, standard deviations, frequency distributions) on respondents' task and knowledge ratings as well as on respondents' backgrounds and other demographic information. Prometric typically reports the rating means, standard deviations and frequency percentage distributions for each of the tasks and

knowledge/skill statements (in some cases other mean ratings are evaluated). Additionally, Prometric provides an analysis of subgroup means to ensure that identified subgroups rate the task and knowledge/skill statements in a similar manner. Other statistical analyses may be conducted such as a factor and reliability analyses. While quantitative data may be used, Prometric collects and in some cases analyzes qualitative data (open text responses) which often corroborates the quantitative data.

As Prometric analyzes the survey data, we will create exam blueprints (table of specifications indicating question type, e.g., recall, application, or analysis) based on the results of the surveys and the requirements for developing a valid, reliable, and defensible exam for the purposes of knowledge/skill gap analysis.

Job Analysis Activity 8: Define Test Specifications with the ACPV

Objective: Creating the blueprint for the examination.

After analyzing the data from the job analysis survey, Prometric will lead the task of updating your existing examination blueprint according to the information received from the survey. Our staff will do this by conducting a test specification meeting with subject matter experts and ACPV representatives as appropriate.

At the test specification meeting, we use the survey results to finalize the tasks and knowledge areas that should be tested on the examination being developed. We will guide the meeting participants through activities where they confirm and expand the list of domains and individually assign each one a percentage weight. After reviewing the results of the activities, the participants will determine the optimal percentage weights for each domain. It is important that 10 to 15 SMEs are able to participate, and that five to seven of the meeting participants be members of the original task force. This continued involvement of a few subject matter experts provides continuity across the different steps of a job analysis.

Three main deliverables will result from each test specification meeting:

1. the **content outline** for the examination—an organized, classified listing of the subject areas, knowledge, skills and abilities (also known as “knowledge domains”) to be covered in the exam;
2. the test **content weights**—percentages, totaling to 100 percent, denoting the emphasis of each domain in the overall exam; and
3. **further recommendations** for those topics to be addressed in examination questions.

These are critical components to your exam that will provide a valid and reliable foundation for all test development activity.

Job Analysis Activity 9: Prepare and Submit the Final Report

Objective: Providing a comprehensive summary of the job analysis activities and results.

Following the test specifications meeting, Prometric will submit a final report to the ACPV in your preferred electronic format. The report will include an executive summary, a description of the activities performed, and the results of all statistical analyses. The report will also include:

- + a description of the implementation of the methodology proposed by Prometric;
- + clear and detailed definitions of the competencies required for satisfactory job performance; and

- + a matrix of proposed exam content outlines and specifications.

Our report is unique in that it documents the processes followed to develop the survey and draws attention to the critical results that support the validation of the credential. The appendices are comprehensive ensuring that all relevant components and analyses are centralized in a single document. This report will also include a rationale for the exam blueprints, SME requirements for item writing and recommendations for a minimum number of items per exam. We would be happy to provide you with a sample Prometric job analysis report upon request.

Job Analysis Activity 10: Recode Existing Exam Items

Objective: Updating the categorization of the existing item bank according to the new test specifications.

Following completion of a job analysis, your existing exam items will need to be recoded to match the new test specifications. Recoding of the item bank can be conducted in one of several methods. The two primary methods are as follows:

We will guide you through adapting your existing exams items to the updated test blueprint, adding efficiency and value to the test development process.

- 1. In-person Review Workshop**—During an in-person workshop, a Prometric test developer will provide direction and oversight to a group of SMES who will work in pairs to review a set of items and recode the items to the new test specifications. Depending upon the number of items that need to be recoded, this may take one to two days.
- 2. Remote Review**—Prometric will send a set of items to ACPV-approved SMEs to conduct a review of the items and recode them to the new test specifications. Prometric provides clear directions to assist SMEs in these activities.

Regardless of the method selected, Prometric recommends that each item be seen and recoded by two SMEs to ensure that there is agreement about how best to map the content of the item to the test specification code.

Our Job Analysis Project Plan will be Customized to Your Needs

On the following page, Prometric has provided a project schedule outlining key tasks and milestones for the proposed job analysis study described in this proposal. It is our goal to remain as flexible and responsive to your needs and objectives as possible. In general, our job analysis activities are highly flexible in the method in which they are administered. During the planning meeting, we will establish final dates for each of the milestones. We can work with you to define the most appropriate meeting format, whether that is in-person, Web conference or a combination. Our team is well versed in proper facilitation methods and will adapt our process to the needs of each activity.

SURVEY JOB ANALYSIS PROJECT PLAN				
Activity	Tasks	Duration	Timeline	Participants
1. Conduct a Planning Meeting	<ul style="list-style-type: none"> + Meet in person with ACPV staff + Review practice analysis scope of work + Discuss survey design, survey sample and strategies for an appropriate response rate 	1-2 hour in-person meeting	Month 1	Core ACPV project group, one Prometric staff
2. Develop a Preliminary List of Tasks and Knowledge	<ul style="list-style-type: none"> + Compile task and knowledge areas for test + Research profession's body of knowledge + Conduct telephone interviews with SMEs (if needed) 	Depends on materials	Month 1-2	One Prometric staff
3. Review the Preliminary List with the Task Force	<ul style="list-style-type: none"> + Conduct meeting with task force committee + Define and describe job domains, tasks, skills and knowledge areas + Discuss appropriate ratings scales for survey 	1½ day in-person meeting	Month 2	10-15 SMEs, one Prometric staff
4. Construct a Draft Job Analysis Survey	<ul style="list-style-type: none"> + Construct the survey + Review with the task force committee + Edit survey from task force meeting results 	Several Web sessions two hours in duration	Month 2-3	10-15 SMEs, one Prometric staff
5. Conduct a Pilot Survey	<ul style="list-style-type: none"> + Administer the draft survey to small set of SMEs + Meet with the task force to discuss recommendations + Update the survey based on recommendations 	Several Web sessions two hours in duration	Month 2-3	10-15 SMEs, one Prometric staff
6. Administer the Survey to the SME Population	<ul style="list-style-type: none"> + Release the survey into the field + Provide an online survey link to the pre-determined sample of SMEs via e-mail + E-mail reminders to SMEs at pre-determined intervals 	Generally 30 days	Month 3-4	30-40% of SME responses desired
7. Analyze Survey Response Data	<ul style="list-style-type: none"> + Analyze and summarize the survey results + Determine appropriate subgroups for analysis + Prepare means, standard deviations, and frequency distributions 	Varies by desired complexity	Month 4-5	2-3 Prometric staff
8. Develop Test Specifications with the ACPV	<ul style="list-style-type: none"> + Conduct the test specifications meeting + Discuss survey results with the ACPV + Create specifications for content outlines based on results data 	Three 3-hour Web sessions; one 1-day in-person meeting per test	Month 5	12-15 SMEs, one Prometric staff
9. Prepare and Submit the Final Report	<ul style="list-style-type: none"> + Compile the final report to document the overall process, each activity and detailed results + Submit the final report to the ACPV 	Varies	Month 5-6	2-3 Prometric staff
10. Recode Existing Items	<ul style="list-style-type: none"> + Work with SMEs to recategorize items to match new test specifications + Review recategorizations with additional SMEs 	Varies	Month 6-7	10-15 SMEs, one Prometric staff

SUMMARY: BENEFITS OF OUR TEST DEVELOPMENT SOLUTION

Collaborating with the ACPV to support and advance your certification program is Prometric's main goal in submitting this service proposal to you. We have assisted hundreds of clients in designing quality testing instruments and work closely with them to maintain their examinations. By relying on our experience and expertise, the ACPV will gain invaluable assistance and insight for advancing your exams—all while remaining in control. We will work at the direction of your decision makers to provide the solution with the most key benefits:

Our test development experience and resources result in a customized solution for ACPV that meets recognized standards for integrity.

- + highly qualified test developers guiding you through standard setting activities—**providing expertise for establishing valid passing scores;**
- + **an established process for job analysis that has been proven to be successful—forming a reliable foundation for your certification testing program;**and
- + proven test development practices followed—**assuring you that everything we do is founded on industry-recognized standards for validity, reliability and overall integrity.**

Through these features, we will be a dedicated partner committed to establishing successful performance and capitalizing on your assessment goals.

PROMETRIC’S EXPERIENCED, CLIENT-FOCUSED STAFF

We understand that operating an effective testing program requires the skill and knowledge of experienced professionals. To deliver the services that you require, the ACPV will engage with our qualified staff—a team of dedicated experts who are committed to the highest levels of service and responsiveness. Our client-focused business model provides the foundation for our solution, which will be supported by the nation’s premier test development group.

As a leading provider of test development services for clients around the world, Prometric has a demonstrated history of meeting the challenges of large-scale, complex engagements. This is due to our qualified test development staff. Within Prometric’s test development department there are more than 60 experienced professionals working in three key competencies: test design; content management; and psychometrics and statistical reporting. The various tasks performed by our staff in these roles are listed in the table below.

PROMETRIC TEST DEVELOPMENT COMPETENCIES	
Competency	Tasks
Test Design	<ul style="list-style-type: none"> + Job analysis and research + Test definition and specification + Standard setting (cut score studies)
Content Management	<ul style="list-style-type: none"> + Subject matter expert (SME) recruiting and management + Item writing, editing and review + Item banking, referencing and coding + Analyzing gaps in item banks + Test form assembly
Psychometrics and Statistical Reporting	<ul style="list-style-type: none"> + Classical and Item Response Theory (IRT) modeling + Item and test analysis + Reliability index determination + Exam equating and scaling + Forensic data analysis + Psychometric research and reporting

Our test development staff are highly credentialed, hold advanced degrees, and are adept at handling multiple projects simultaneously. They will be at your disposal throughout the duration of your project, led by:

- + **Julia Leahy, Ph.D.**, director, psychometrics—the head of our psychometric team with more than 20 years of research and measurement experience;
- + **Nancy Thomas Ahluwalia, MBA**, senior manager, test development—a test design expert with more than 30 years of experience conducting job analysis activities; and
- + **Dongyang Li, Ph.D.**, psychometrician—an experienced provider of psychometric guidance and quantitative analysis support for Prometric’s test developers.

The ACPV will experience real benefits from working with our skilled staff. To further describe their qualifications and capabilities, we have provided brief biographies of our staff leaders below. **These biographies show the unmatched expertise that our team will bring to your program.**

Staff Biographies

Julia Leahy, Ph.D.—Director, Psychometric Services, Test Development

Julia Leahy serves as director, psychometric services, test development for Prometric. In this role, Dr. Leahy is responsible for directing the activities of the psychometricians and statisticians in providing item and test analyses. In addition, she provides consultation and assistance in the field of test design, test development and standard setting activities. Her previous positions at Prometric have included team leader in client services, executive director in test development sales, director of test development and statistical analysis, and program director for several large computer-based programs.

Dr. Leahy holds a doctorate in research and measurement from Adelphi University in Garden City, New York, where she focused on research in nursing practice. Her professional affiliations include the American Educational Research Association (AERA), the Institute for Credentialing Excellence (ICE, formerly the National Organization for Competency Assurance, or NOCA) and the Association of Test Publishers (ATP) where she served as the chair of the certification/licensure division in 2004. Dr. Leahy has been a speaker at many national conferences.

Nancy Thomas Ahluwalia, MBA, SPHR—Senior Manager, Test Development

As senior manager within Prometric's test development department, Nancy Thomas Ahluwalia's responsibilities include oversight of projects such as competency studies and job analyses, training needs assessments, development of pre- and post-training tests, and credentialing and performance tests, including licensing and certification tests. Her primary functions center on job analyses and job-related research, standard setting activities and the creation and maintenance of test parameter documents.

Ms. Thomas brings more than 30 years of job analysis, test design and test development experience. As a former employee of Educational Testing Service and its subsidiary, The Chauncey Group International, she has developed several different types of constructed response item types and has managed the scoring processes associated with them. She has also been directly involved in job analyses for purposes of licensure, career path development, voluntary certification programs and definitions of a body of knowledge for a profession. In addition, Ms. Thomas has facilitated standard-setting studies and client decision-making sessions for the establishment of the passing score on the credentialing examinations.

Ms. Thomas holds a master's degree in business administration from Rider University in New Jersey, a master's degree in linguistics from Georgetown University in Washington, D.C., and a bachelor's degree in Spanish from the College of Wooster in Ohio. In 1999 she earned certification as a Senior Professional in Human Resources (SPHR). She has been a member of the Society for Human Resource Management (SHRM) for 10 years.

Dongyang Li, Ph.D.—Psychometrician

Dongyang Li, Ph.D. is a psychometrician at Prometric. In this role, he conducts various psychometric procedures such as item analysis, equating, scaling, domain diagnostics and scoring based on the classical test theory and Item Response Theory. Dr. Li is primarily involved with testing programs in the health care and associations segment, providing psychometric guidance and quantitative analysis support for Prometric's test developers and creating customized tools for data cleaning and analysis.

Prior to Prometric, Dr. Li served for two years as the institutional researcher at the Holy Family University in Philadelphia. During his doctoral study, he interned with ACT and the testing division of the Center for Applied Linguistics. He received his doctorate in educational measurement, statistics and evaluation from the University of Maryland and is an active member of the American Educational Research Association (AERA) and the National Council on Measurement in Education (NCME).

INVESTMENT PROPOSAL

In this proposal we have provided an overview of our proposed services, which are aimed at achieving your testing goals. In providing the pricing below, it is our hope that you can make determinations regarding the scope and degree of investment that may need to be allocated for each component of the program. The first table below lists Prometric’s pricing for conducting the immediate test development services we have described in our proposal.

TEST DEVELOPMENT PRICING	
Task Description	Price
Item Analysis and Summary Report (Includes one problem item notification call, if necessary)	\$5,600 per exam form
Standard Setting Study for Multiple Choice Section (Angoff model)	
Option 1: Remote Web conference	\$6,300 per exam
Option 2: In-person workshop	\$8,250 per exam
Standard Setting Study for Constructed Response Section (Holistic) (In-person workshop)	\$8,250 per exam
Form Equating	\$3,800 for first form, \$1,400 per subsequent form

Test development pricing is also based on certain assumptions. They are as follows:

- + All prices are based upon examinations being developed in English; translation fees apply for all other languages.
- + For all in-person meetings, travel and expenses for Prometric staff will be billed at cost in addition to the test development fees listed in this section.
- + Pricing for in-person workshops includes planning and facilitation by Prometric staff with volunteer SMEs recruited and secured by the ACPV. We will gladly discuss alternate SME recruitment and compensation options if desired.
- + The ACPV will be responsible for all costs associated with meetings and studies, including securing SMEs, meeting sites and equipment and paying all travel, lodging and dining expenses for all participants, including Prometric staff. Web conferencing may be used at times to reduce such costs.

Pricing for conducting a job analysis study according to the process described in this proposal are shown in the table on the following page.

JOB ANALYSIS PRICING	
Task Description	Price
Job Analysis Study, including the following activities: <ul style="list-style-type: none"> + Conduct a Planning Meeting + Develop a Preliminary List of Tasks and Knowledge + Conduct a Task Force Meeting + Construct the Job Analysis Survey + Conduct a Pilot + Administer the Survey + Analyze Survey Data + Develop Test Specifications + Prepare Final Job Analysis Report 	\$42,000 per study
Recode Existing Items, if applicable	\$600 per item bank set up plus \$6 per item recoded

This job analysis pricing is also predicated on assumptions, which are stated below.

- + The pricing assumes that we will conduct and analyze one survey, using the results to create test specifications for one exam. If we determine during the planning stages that multiple surveys with related analyses would be required, costs for each additional survey would apply.
- + Response rates that are insufficient for data analysis could require an extension of the survey period and additional communications to survey recipients that are not included in this pricing.
- + If any survey participants cannot be contacted by e-mail, the ACPV will print and mail customized letters and reminder postcards to all survey participants with the online survey URL. (Prometric is prepared to price and carry out these activities if requested by the ACPV.)
- + The ACPV will be responsible for all travel, lodging and dining costs for activity participants, including Prometric staff. Web conferencing may be used at times to reduce such costs.
- + In consultation with Prometric, the ACPV may opt to perform certain job analysis tasks internally or omit them from the study. We will examine these possibilities further with the ACPV.

All pricing is valid for 90 days from the date of receipt and subject to a three percent (3%) cost-of-living adjustment each year of the contract.

CONCLUSION

Prometric seeks to continue as the testing solutions partner for the ACPV. We appreciate the opportunity to work in conjunction with you and your subject matter experts to enhance the quality and value of the ACPV credential. Initially we will convene the appropriate team members to review your current examinations' performance and discuss strategies for enhancing each of them. In an extremely competitive marketplace, we find that quality of the credential often makes the difference for potential members. We believe we have addressed your key business needs and goals while adding value and process improvement through providing a meaningful test development solution that utilizes your current infrastructure.

Built on a solid foundation of 50 years of test development for many prestigious organizations, our experience, knowledge and established processes translate to high quality exams. Our unequalled level of experience provides ACPV the right blend of solutions to meet your requirements for a relevant, legally-defensible testing program. As you review our solution, we would like to emphasize a few key points that you should consider when evaluating the benefits of selecting Prometric as your partner. These points include:

- + **Unparalleled Experience**—Prometric has the knowledge and skill required to meet the exacting needs of computer-based testing. Specifically, Prometric has an excellent track record of successfully administering computer-based exams for similar clients.
- + **Organizational Involvement**—Prometric will maintain an experienced staff on management and program levels to ensure that all operational needs, performance standards and customer satisfaction targets are met. We focus on your business and strategic objectives and develop custom solutions to address your unique needs.
- + **Commitment to Continuous Improvement**—Prometric clients inherently benefit from our continued investments in our global network, technology and infrastructure.
- + **A Strong Client Community**—Prometric clients form a true community of peers. There have been many instances where we have worked to bring clients with similar goals and needs together so that they can share best practices and leverage common resources to grow their respective programs. Further, our clients are able to leverage the investments we make in technology and test centers for all of their needs.
- + **A Partner In Growth**—Prometric can provide consultative strategies for growth by helping clients realize possible efficiencies and identify new streams of potential revenue.
- + **A Fully Integrated and Affordable Solution**—Through our understanding the ACPV's short and long term business goals, Prometric has provided a pricing model that enables an extremely cost effective solution.

Prometric welcomes the opportunity to continue to work with ACPV as your partner and we are committed to collaborating with you to provide your desired scope of service. As your partner, we are committed achieving the immediate and future goals you have set for your assessments.