

# Model Standards for Forensic Science Graduate Program Evaluation

Sir:

We recently had occasion to serve on a national Technical Working Group on forensic science education and training. During that same time, we acted as invited consultants to provide an external evaluation of one of the forensic science graduate programs. These experiences, along with the recent discussions in the American Academy of Forensic Sciences and the Council on Forensic Science Education about possible educational program accreditation, prompted us to formulate the compilation of standards presented here.

These standards can serve as the basis for further discussions about the criteria to be used to judge graduate forensic science programs in general, and perhaps more specifically, for program accreditation. In the latter context, standards and guidelines similar to those articulated below would serve as the basis for a program's self study.

The proposed standards are patterned on evaluation criteria used by three accrediting bodies for graduate professional degree programs, the Council on Education for Public Health (CEPH), the Accreditation Council on Optometric Education (ACOE), and the American Council on Pharmaceutical Education (ACPE) [see the web sites [www.ceph.org](http://www.ceph.org), [www.aoanet.org/students/accreditation.asp](http://www.aoanet.org/students/accreditation.asp) and [www.acpe-accredit.org](http://www.acpe-accredit.org)].

For the most part, the evaluation criteria used by these accrediting bodies target components common to the academic enterprise, e.g., resources, faculty, curriculum, research, service, students, etc. As appropriate, the evaluation criteria have been modified and streamlined to apply to forensic science education. Overall, the proposed standards are concerned with assessing the quality of both product and process—the desired ends, the means used to achieve the desired ends, and evaluation of the degree to which the desired ends are attained.

The proposed standards are grouped into nine major areas. Each standard is accompanied by a set of guidelines that provide direction for assessing how well the program is meeting the standard; implicit in these guidelines is the documentation required for assessment purposes. These guidelines can be used also as a self-study guide to help a graduate degree program assess how well it is achieving its mission, goals, and objectives for the purposes of planning and self-improvement.

The overarching mission of graduate education in a professional area, regardless of field, is to prepare individuals for practice, for research, and for teaching in the service of the profession and of society. Prerequisite to this mission, a graduate program must possess certain fundamental characteristics:

1. The program and its faculty should have the same rights, privileges, and status as other professional programs at the parent institution.
2. The program should include instruction, research, and service as components.
3. The program should include elements of the multiple disciplines that serve as the foundations of the field. The program-learning environment should stress problem solving, promote interdisciplinary communication, and foster development of professional concepts and values.
4. The program should provide the focus for the wide array of academic and professional interests and activities that relate to the practice of the profession. The program should provide an intellectual climate that stimulates and facilitates multidisciplinary exchanges of ideas between academics and professionals. The program environment should stimulate both individual initiative and cooperative activity among its faculty.
5. The program should have faculty and other human, physical, financial and learning resources to provide both breadth and depth of educational opportunity in the core areas of the profession.
6. The program should plan, develop and evaluate its instructional, research, and service components to combine educational excellence with applicability to the world of practice.

These principles are embodied in the framework for program evaluation that follows.

## Proposed Model Standards and Guidelines

Each of the nine sections in this self-study guide contains one or more standards (printed in italics) accompanied by a set of guidelines delineating the elements of each standard. As noted above, the guidelines are used to assess how well the program is succeeding in each area, where problems exist, and where improvements need to be made. The guidelines also show what documentation is required for assessment purposes. Used as a self-study guide, the model standards and guidelines provide a framework for drafting recommendations for change and for developing plans to implement the recommendations.

### I. Mission, Goals, and Objectives

*Standard 1. The program shall have a clearly formulated mission with supporting goals and objectives.*

#### Guidelines

- 1.1 The program should have a mission statement. The mission statement reflects the program's overall educational philosophy, i.e., its overall purposes, intent, and uniqueness. It should acknowledge the broad mission of forensic science to provide high quality, ethical service to the justice system through scientific and technical analyses and the nature of forensic science as an evolving profession.
- 1.2 The program should have a plan with goals and objectives by which it seeks to achieve its mission. The program should

identify what it seeks to accomplish through its instructional, research, and service activities, the desired outcomes in each of these areas, and what resources are required to achieve these outcomes.

- 1.3 The program should have a regular process for reviewing, monitoring, assessing, and, if necessary, revising the program's mission, goals and objectives.

## II. Organizational Setting and Governance

*Standard 2. The program shall be an integral part of an accredited institution of higher education and shall have the same level of independence and status accorded to professional programs in that institution.*

### Guidelines

- 2.1 The nature of the institution in which the program is located should be characterized, including consideration of the perceived mission of the institution and any special constituencies it may serve. The accrediting bodies to which the institution responds should be identified.
- 2.2 The program's place in the organizational structure of the institution should be identified. This can be demonstrated with an organizational chart for the institution indicating the program's relationship to the other components of the institution, both academic and administrative.
- 2.3 The program's place within the framework of the institution's system of governance should be characterized, specifically with regard to
  - a. Budgeting and resource allocation,
  - b. Personnel recruitment, selection and advancement, and
  - c. Establishment of academic standards and policies.
- 2.4 The institution should afford all faculty an opportunity to participate in the governance system and in the affairs of the institution.
- 2.5 The institution should have policies for program review that specify the frequency of review, the structure of the reviewing bodies, standards and/or guidelines used for the review, and other pertinent detail.

*Standard 3. The institution and the program shall provide an organizational setting conducive to teaching and learning, research, and service. The organizational setting shall facilitate interdisciplinary communication, cooperation, and collaboration. There shall be an environment conducive to fair and ethical dealings within and between administration, faculty, staff, and students.*

### Guidelines

- 3.1 The program should have a defined organizational structure. This should include specification of the relationships of its component units (if any) and the administrative lines of authority within the program and its components.
- 3.2 The institution and the program should have established mechanisms to support interdisciplinary coordination, cooperation, and collaboration.
- 3.3 The institution and/or the program should have written policies demonstrating its commitment to fair and ethical dealings, including (but not limited to) policies regarding conflicts of interest, due process, and non-discrimination.

*Standard 4. The program head should be qualified to provide leadership in forensic science education, in research and scholarly activities, and in preparation for professional practice.*

### Guidelines

- 4.1 Indices of positive and effective leadership include:
  - a. Commitment to teaching and research, including pedagogy and scholarly concern for the profession generally;
  - b. A sustained record of scholarship;
  - c. Knowledge of the forensic science laboratory system in the U.S.;
  - d. Active and ongoing participation in the affairs of professional or scientific societies; and
  - e. Assertive advocacy on behalf of the program to the University administration.
- 4.2 There should be provision for periodic review of the program head or other administrative leader. The review process should be broad-based, and include participation of faculty, students, and possibly cooperating practitioners.

*Standard 5. The program administration and faculty shall have clearly defined rights and responsibilities concerning program governance and academic policies. Where appropriate, students shall have participatory roles in program governance.*

### Guidelines

- 5.1 The program should afford all faculty an opportunity to participate in the governance system and in the affairs of the program.
- 5.2 The program should have established administrative, governance, and committee structure and processes, particularly as they affect:
  - a. General program policy development;
  - b. Curriculum planning and implementation;
  - c. Budget and resource allocation;
  - d. Student recruitment, admission and awarding of degrees;
  - e. Faculty recruitment, retention, promotion and tenure;
  - f. Academic standards and policies; and
  - g. Complaints and grievances.

## III. Resources

*Standard 6. The program shall have resources adequate to fulfill its stated mission and its goals and objectives in instruction, research, and service.*

### Guidelines

- 6.1 The program should have a stable budgetary base. This can be demonstrated with a clearly formulated program budget statement, showing sources of funding and distribution of expenditures by major categories, over the preceding five years and projected two years forward. This statement should include data on institutional funding per full-time-equivalent student and extramural funding obtained in support of the programs teaching, research, and service functions.
- 6.2 The program should have adequate qualified faculty resources to support the instructional component of the program. A summary of faculty resources, including data on student-to-faculty ratios and a description of policy pertaining to the distribution of teaching loads, should be documented. (FTE faculty and FTE student numbers should be used and these should be con-

sistent with FTE faculty and student numbers presented in subsequent sections.) Include a table showing for each faculty member: his/her program area, percent time, and teaching load (student credit hours per faculty member per year).

- 6.3 The program should have adequate support personnel for program administrative, teaching, research, service, and other functions.
- 6.4 The program should have adequate space. The amount of space available to the program by purpose (offices, classrooms, common space for student use, etc.) and location should be identified.
- 6.5 The program should have adequate laboratory space and facilities. These should be characterized, including quantity, quality, intended and actual usage, and special features or equipment.
- 6.6 The program should have adequate computer facilities and resources for students, faculty, administration, and staff.
- 6.7 The program should have access appropriate library/information resources. The collection, educational technologies, services, and staff should be adequate to the needs of faculty and students.
- 6.8 Program use of off-campus community resources used in instruction, research and service should be documented for the preceding five years; include data on the number of students placed in each agency and the number of agency-based preceptors. Identify the agencies for which there are formal agreements.
- 6.9 The program should have defined outcome measures by which it judges the adequacy of its resources. The program's performance against those measures over the last five years should be documented.

#### IV. Curriculum and Instruction

*Standard 7. The program shall offer a curriculum reflecting its stated mission and goals, leading to the appropriate professional or academic masters degree. The curriculum shall, at a minimum, assure that each student*

- a. *Develops an understanding of the areas of knowledge which are basic to forensic science,*
- b. *Acquires skills and experience in the application of basic forensic science concepts and of specialty knowledge to problem solving,*
- c. *Is oriented in professional values, concepts and ethics, and*
- d. *Demonstrates integration of knowledge and skills through a culminating experience.*

*There shall be clear learning objectives for each discrete component of the curriculum and procedures for assessing and documenting student progress toward the fulfillment of these learning objectives and toward readiness for forensic science practice.*

##### Guidelines

- 7.1 The structure of the graduate degree program should be defined, indicating the areas of specialization possible and the expected time to degree. If the program also offers an undergraduate degree in forensic science, the distinguishing differences between the undergraduate and graduate curricula must be identified. This information should be incorporated in a program bulletin or other official publication, which describes all curricula offered by the program.

- 7.2 The program should identify the areas it considers core to the forensic science program and describe how each area is covered in the curriculum. The program should contain sufficient forensic science core to distinguish it from traditional science graduate programs.
- 7.3 The program should be able to demonstrate that the curriculum is of adequate intensity, breadth, and depth so as to clearly distinguish the program as a graduate level program and to support achievement of the stated competencies.
- 7.4 Each component of the curriculum should have defined learning objectives. The program should be able to document the means by which the learning objectives are made available to students. The manner in which the program periodically assesses the changing needs of forensic science to maintain the currency of its learning objectives should be identified.
- 7.5 The program should have defined procedures to assure that students have a broad understanding of the areas of knowledge basic to forensic science and to monitor and evaluate student progress toward meeting stated learning objectives. The program should have established principles and methods for the formative and summative evaluation of student achievement. A variety of evaluation measures should be systematically and sequentially applied throughout the program.
- 7.6 The program should have defined policies and procedures regarding off-campus placements, including criteria for selection of sites, methods for approving preceptors, mechanisms of faculty oversight, and methods of assessment of students.
- 7.7 The program should have established procedures for the regular evaluation of teaching by students or by peers. Representative examples of the results of student and/or peer evaluations of teaching for the past five years should be provided.
- 7.8 If the degree program has a culminating experience required for the completion of the degree (e.g., research thesis, project report, comprehensive examination, etc.), this should be rationalized and the procedures used for its assessment described.
- 7.9 The program should be able to document its five-year record of performance with regard to degree completion rates, job placement rates, and any other outcome measures by which the program assesses student progress and achievement.

#### V. Research

*Standard 8. The program shall provide an environment conducive to research and scholarly inquiry, providing the opportunity for faculty and students to contribute to the knowledge base of forensic science, including research directed at improving the practice of forensic science.*

##### Guidelines

- 8.1 The program should have established policies, procedures, and practices, which support research and scholarly activities.
- 8.2 The program should be able to document research activities undertaken in collaboration with external agencies and organizations. Formal research agreements with such agencies should be identified.
- 8.3 The program should have an adequate funding base to support its research activities. This should be documented by a listing of current research activity, including amount and source of funds, over the last five years.
- 8.4 The program should have defined measures by which it evaluates the success of its research activities and be able to provide data regarding the program's performance against those measures over the last five years.

- 8.5 The program should engage students in research. Student involvement in research should be documented.
- 8.6 The program should have an adequate funding base to support the research activities and experience required of the students in the program. This should be documented by a listing of student research support, including amount and source of funds, over the last five years.
- 8.7 The program should be able to provide examples of research reports and/or theses produced in the past five years, and copies or reprints of any abstracts or publications resulting from research involving graduate students.

## VI. Service

*Standard 9. The program shall provide service to the profession and to the community through communication, collaboration, consultation, provision of technical assistance, and other means of sharing the program's professional knowledge and competence. This service function provides the opportunity for faculty and students to contribute to the advancement of the field, including continuing education.*

### Guidelines

- 9.1 The program should have established policies, procedures, and practices, which support service activities. If the program has formal contracts or agreements with external agencies, these should be noted. A list of the program's service activities over the last five years, including identification of the external organizations and the nature of the activity, should be described.
- 9.2 The program's involvement in continuing education, including policies, procedures and practices, which support continuing education, should be provided. If the program includes a continuing education component, a list of the continuing education courses offered over the last five years, including number of students served, should be included. If the program collaborates with other educational institutions in offering continuing education, these institutions should be identified.
- 9.3 The program should involve students in service activities. Policies, procedures, and practices which support student involvement in service activities should be described.
- 9.4 The program should have defined measures by which it evaluates the success of its service function. Data regarding the program's performance against those measures over the last five years should be provided.

## VII. Faculty

*Standard 10. The program shall have a clearly defined faculty, which by virtue of its size, multidisciplinary base, educational preparation, research and teaching competence, professional activity, and practice experience, is able to fully support the program's mission, goals and objectives.*

### Guidelines

- 10.1 The faculty of a program consists of individuals who have a range of academic titles, full- or part-time appointments, and serve with or without compensation. A critical nucleus of full-time faculty to support the core forensic science disciplines and each core area of the curriculum is essential. The program faculty should be documented with a table or chart listing faculty actively participating in the degree program, indicating professorial rank, tenure status, percent time,

earned degrees, universities at which degrees were earned, disciplinary area of degree, area of teaching responsibility, and area of research interest.

- 10.2 The program should maintain up-to-date CVs for each active member of the faculty; these should include a listing of honors, professional activities, and publications.
- 10.3 The FTE faculty / FTE student ratio in the program should be adequate so as to provide appropriate individualized instruction, guidance, and evaluative supervision by faculty during the research component of the curriculum.
- 10.4 The program faculty should integrate perspectives from the field of practice into the instructional and research program.
- 10.5 The program should have established measures by which it assesses the qualifications of its faculty as a collective, along with data regarding the performance of the program against those measures over the last five years.

*Standard 11. The program shall have well defined policies and procedures to recruit, appoint, and promote qualified faculty, to evaluate the competence and performance of faculty, and to support the professional development and advancement of faculty.*

### Guidelines

- 11.1 There should be a faculty handbook or other written documents, which outline rules and regulations pertaining to faculty recruitment, appointment, and promotion. There should be documentation of program policies and procedures supporting a commitment to equal opportunity without regard to age, sex, race, disability, religion, or national origin.
- 11.2 The program should make provision for faculty development, particularly with regard to junior faculty. Faculty should be provided with adequate time and resources to maintain and advance academic and profession qualifications. Support for faculty categories other than regular full-time appointments should be included.
- 11.3 The program should have formal procedures for evaluating faculty competence and performance in the promotion and tenure process, including the relative weights given to teaching, research, professional activity and service, and university service.
- 11.4 The program should have a defined process by which students can evaluate courses and teaching effectiveness.

## VIII. Students

*Standard 12. The program shall have policies and procedures for student recruitment and admissions designed to locate and select qualified individuals who have the educational prerequisites and the interest and motivation to pursue careers in forensic science. Stated application, admission, and degree-granting requirements and regulations shall be applied equitably to individual applicants and students regardless of age, sex, race, disability, religion or national origin.*

### Guidelines

- 12.1 The program should have stated policies and procedures for recruitment and admissions. Program recruitment procedures should be designed to attract a highly qualified applicant pool.
- 12.2 The program should have policies and procedures for assessing the relationship of student qualifications at admission against subsequent academic performance. Specific informa-

tion on students admitted provisionally or conditionally should be provided.

- 12.3 The program's recruitment materials and other publications and advertising should describe, at a minimum, academic calendars, grading, and the academic offerings of the program. The most recent catalog and references to website addresses must be included.
- 12.4 The program should maintain records with quantitative information on the number of applicants, acceptances and admissions over the last five years. This should include a comparison of those accepted vs. those denied with respect to the standard indicia used to evaluate applicants, such as GPA, undergraduate major, undergraduate degree-granting institution, GRE scores, etc.
- 12.5 The program should maintain records with quantitative information on the number of students enrolled in the degree program and in each specialty area, including a headcount of full-time and part-time students and a full-time equivalent conversion, over the last five years.
- 12.6 The program should endeavor to provide support for its students through scholarships, work study, research and teaching assistantships, and other forms of financial aid.
- 12.7 The program should have defined outcome measures by which it evaluates its success in enrolling a qualified student body, along with data regarding the performance of the program against those measures over the last five years.

*Standard 13. There shall be available a clearly explained and accessible academic advising system for students, as well as readily available career and placement advice. The program shall provide an environment and culture that nurtures a positive attitude about the forensic science profession, is conducive to good student morale, and inculcates attitudes, ethics, and behaviors congruent with professional standards. Harmonious, supportive faculty-student relations are to be encouraged.*

#### Guidelines

- 13.1 Faculty should mentor students in their academic pursuits, provide guidance on various career pathways, and encourage student involvement in affairs of the profession. Faculty should actively encourage student involvement in professional organizations.
- 13.2 The nature and availability of advising and counseling services should be clearly presented to students and known to faculty.
- 13.3 The program should have stated policies and procedures regarding academic standards, grading, academic standing, dismissal and reinstatement, disciplinary actions, due process, and related matters. This should include procedures for providing fair warning to students who are not meeting academic standards or who are not making satisfactory progress toward their degree.

- 13.4 The program should have formal advising or progress monitoring systems designed to insure that satisfactory progress toward the degree is maintained.
- 13.5 The program should have formal policies for handling student complaints and established procedures for seeking their resolution.
- 13.6 Programs are encouraged to use their alumni as a resource in professional orientation and to include alumni in program functions and activities.
- 13.7 The program should have a mechanism for assessing student satisfaction with advising and counseling services and student morale overall.

#### **IX. Evaluation and Planning**

*Standard 14. The program shall have an explicit process for evaluating and monitoring its overall efforts to fulfill its mission, goals and objectives; for assessing the program's effectiveness in serving its various constituencies; and for planning to achieve its mission in the future. Toward this end, the program shall conduct at regular intervals an analytical self-evaluation that responds to the criteria outlined above and includes a summary statement of the program's strengths and weaknesses with regard to each criterion and to the program's performance overall.*

#### Guidelines

- 14.1 The program should conduct regular self-evaluations to identify problem areas and to formulate plans for corrective action. The program should be able to document the evaluation procedures and planning processes in current use, including the process used for program self-study.
- 14.2 The program should maintain a record of its most recent self-study and an accounting of its actions, successes, and failures in correcting problems identified.
- 14.3 The program should undergo regular internal institutional review and, desirably, external review. It should maintain records of the most recent internal and external (if applicable) program reviews and an accounting of its responses to recommendations made in those reviews.

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