

# Role of the PhD Mentor

## Research Program

### 1. Identification of Advisor

During the first 18 months of graduate study each student is expected to explore research opportunities with different faculty members in the graduate program, and to select one member who agrees to serve as the student's research advisor. This individual is required to be an active investigator and is expected to provide financial support for the student over the period of study and research that follows the 18-month period of corporate support. The student's department or institute is required to guarantee financial backup for the student in case the advisor's research support falters. For this reason, the choice of advisor requires approval of a department/institute chair or his or her designee, often the program director for graduate studies in the graduate program. The department or institute is expected to provide a research advisor and financial support for each student who is performing satisfactorily in its graduate program.

### 2. Approval of Research Protocol

Within 90 days of passing the qualifying examination, a graduate student, in collaboration with his or her research advisor, is expected to submit to the Graduate School Dean a proposed Dissertation Committee for approval by the Dean. The student is expected to submit to the Committee, no less than 18 months prior to completion of degree requirements, a proposed research protocol that has been approved by the student's advisor. The protocol is intended to outline a research program for the student that is well-conceived, hypothesis-driven, focused and achievable. The protocol is not intended to handicap the student by defining an unalterable course of action for the research. Rather, it is designed to allow the student's advisor and Committee to help the student in the conceptualization of a research program. The protocol must be approved in writing by the Dissertation Committee, and a copy of the approval must be filed in the Graduate School office.

### 3. Dissertation Committee

Dissertation Committee members are selected by the student with guidance from the research advisor. Members must be appropriate for the area of research and must agree to serve on the Committee. The Committee should consist of at least five appropriate scientists (including the advisor) and, including at least one who has no faculty appointment in the student's degree-granting unit but may be a member of the MCW faculty. One member may be chosen that has no faculty appointment at the Medical College of Wisconsin. The Dissertation Committee composition must be approved by the Dean of the Graduate School for Biomedical Sciences. At any time the Graduate Faculty Credentials Committee may request documentation regarding the qualifications of the research advisor and/or Committee members as deemed necessary to demonstrate that appropriate conditions for graduate training are provided.

#### 4. Supervision of Research

Primary responsibility for supervision of the research of a graduate student rests with the student's advisor. This individual is expected to follow the progress of the research closely and to provide guidance and counsel in the research methods employed and in the overall course of the research program. Periodic reviews of the research should be requested of the student, and reports of progress by the student should be provided periodically, either in person or in writing, to the Dissertation Committee. The Dissertation Committee should meet at least twice yearly with the student to assess the student's progress. A written yearly evaluation is provided to the program director with a copy to the department chair and the Graduate School Dean. It is recognized within the graduate faculty that a student who does well in research reflects positively on the research advisor.

#### 5. Attainment of Specific Knowledge and Skills

Research training consists of many facets, not the least of which is the development of a specific body of knowledge and set of technical skills needed to pursue innovative ideas as a career path in biomedical research. It is the responsibility of the research advisor to ensure that the student acquires this knowledge and skill set as part of the graduate educational experience. Demonstration of these acquisitions to the student's Committee is also an integral part of the evaluation process for each graduate student. The ability to utilize the acquired knowledge and talents is demonstrated each day in the research laboratory, where it can be assessed on an ongoing basis by the research advisor.

#### 6. Handling and Analysis of Research Data

These requirements are integral to the success of anyone engaged in biomedical research. Some elements can be acquired in course work, but much must be learned in practice. This learning process is one of the reasons why intensive research experience is essential in the education of graduate students in the biomedical sciences. Supervision of the process, and frequent assistance and evaluation in the acquisition of necessary skills, are the responsibility principally of the research advisor. The student's Dissertation Committee also contributes to this evaluative process, especially during the review and defense of the student's dissertation. Problems in defending a dissertation because of inadequate analysis of research data is interpreted as a criticism not only of the student, but also of the research advisor.

#### 7. Focusing the Research Effort

One of the principal challenges of working with students in the research environment is in helping them develop a properly designed and well-focused research project that is achievable and has well-delineated objectives. Many persons have some degree of responsibility in working with a student towards this objective. The principal responsibility, of course, rests with the student, but the research advisor is expected to interact closely with the student in the formulation of a proposed project and research protocol. The student's Dissertation Committee must approve the project and submit a written approval form to the Graduate School office signifying their agreement with the project and protocol. The Dean of the Graduate School also may intervene if questions remain about the adequacy of the project or protocol. Finally, the research advisor and periodically the Dissertation Committee are expected to evaluate the student's performance to ensure that the research has remained focused and directed.

## Preparation of Dissertation

### 1. Review of Dissertation Outline

Once a student's research has progressed sufficiently to begin writing, the student submits an outline of the dissertation to the Dissertation Committee for review. The Committee may choose to meet with the student, in which case the research advisor is expected to establish the meeting. After the Committee is satisfied that the outline describes the research project and follows the format for dissertations at MCW, each member of the Committee signs an approval form which is sent to the Dean of the Graduate School. The Dean reviews the outline and, if satisfied, notifies the student in writing that the outline has been accepted by the Committee and the Graduate School.

### 2. Monitoring of Dissertation Development

Responsibility for monitoring dissertation development and ensuring that the student's writing is progressing belongs principally to the student's research advisor. Access to the advisor for questions of content, format and style is assumed, and any student who experiences difficulty is encouraged to discuss concerns confidentially with the Graduate School Dean, who can then intervene on the student's behalf if the concerns are justified. The advisor is encouraged to read parts of the dissertation periodically to ensure that the writing is proceeding satisfactorily.

### 3. Review of Draft Dissertation

Once the dissertation is in draft form but complete in all of its parts, including illustrations and references, the draft is presented to the Dissertation Committee and the Dean for review. Each member of the Committee is expected to read the draft dissertation and comment on several aspects, including its completeness, succinctness, logic, format and style. These comments are communicated to the student, and are expected to be considered thoughtfully by the student in a redraft with the help of the research advisor. Multiple re-reviews of the draft may be required by the Committee as the draft evolves to its final stage of completion. Two weeks before a defense is to be held, a preliminary copy of the dissertation should be submitted to the Dean.

### 4. Submission and Defense of Dissertation

Once comments of the Committee have been addressed by the student in a fashion considered satisfactory by the research advisor, the final oral defense of the dissertation is scheduled by the student so that all members of the Dissertation Committee can attend. The defense is announced by the Graduate School and through the program directors of all graduate programs so that interested members of the graduate faculty can attend. A defense typically lasts 1-2 hours and focuses on the student's research and qualities of the final dissertation. The defense is usually chaired by the research advisor serving as chair of the Dissertation Committee. When the defense is finished, the student and all observers are excused, and the Committee deliberates the quality of the research, dissertation and defense. If the student passes these criteria, final editorial changes in the dissertation are collected by the chair to be communicated to the student. If the student's performance is considered deficient according to any of these criteria, a course of remedial action is determined by the Committee. Finally, the chair of the Committee is empowered to notify the student of the Committee's action, which usually occurs immediately after the Committee adjourns.

### 5. Final Approval and Presentation of the Dissertation

Final changes in the dissertation are to be incorporated into the dissertation within two weeks of the defense, and the dissertation is taken by the student to the Graduate School office for binding. Two copies (one paper copy for the library and one for microfilming) of the final bound version are expected in the graduate office no later than 2 weeks after the date of the defense. Exceptions to this procedure must be approved by the Dean of the Graduate School. A copy of the final dissertation should be given to the research advisor; other copies may be distributed as desired by the student.

#### 6. Publication of Research Results

Each student is encouraged to draft one or more papers for publication in a peer-reviewed journal describing the results of the research. These papers are to be written in close collaboration with the research advisor. Approval of the dissertation and the student's eligibility for graduation are not dependent on the submission or acceptance of a paper for publication.

### **Awarding of Degree**

Once the student has successfully completed the dissertation defense, notice of the successful defense must be communicated in a timely fashion by the chair of the Dissertation Committee to the Dean of the Graduate School. The Dean then verifies that the student has satisfied all requirements for graduation, and then submits the student's name to the MCW Board of Trustees for approval for the degree by August 30, December 30, or April 30. The board acts on this submission at its next regularly-scheduled meeting. If approved, the student's name is added to those receiving a degree on the next graduation date.