PhD in Medical Physics

Mentored Experience Implementation Plan

As part of their degree requirements, PhD students must complete a program-defined Mentored Experience Requirement (MER) as per these guidelines. The Mentored Experience Implementation Plan (MEIP) is the written articulation of a program-defined degree requirement for PhD students to engage in mentored teaching activities and/or mentored professional activities, collectively referred to as *MERs*.

Mentored Experience Requirements (MERs)

Philosophy of Teaching

Medical Physics is a field which includes teaching at a number of levels, regardless of the career pathway. Being able to clearly explain and educate others about medical physics topics is an important skill due to the multi-disciplinary nature of the field, and the position of medical physicists at the nexus of communication between a number of different individuals with differing backgrounds and levels of understanding regarding medical physics topics and concepts. Medical physicists in both clinical and academic settings may be involved with educating students, trainees, and other personnel both in classroom-type, one-on-one trainings, and other settings. Even those in industry or regulatory experience must be able to educate others on the use of products and equipment, and/or how to achieve required benchmarks or guidelines. Individuals attaining a PhD are likely to participate in one or more of those pathways throughout their professional life. The mentored educational experience, either in the form of a Mentored Teaching Experience (MTE) or Mentored Professional Experience (MPE), is thus an important element for helping aspiring medical physicists gain comfort with educating individuals in many of the ways in which they may need to in their careers. It can also help individuals identify interest in teaching and training elements which can help guide them on the selection of their chosen pathways.

Preparatory Engagement

Preparatory Engagement activities are those that represent an introduction to the foundational skills associated with teaching or communication. Pedagogical preparation engagement activities are normally completed before students are permitted to engage in assisting or teaching in a classroom.

Two Preparatory Engagement activities are required:

1. Center for Teaching and Learning (CTL) Teaching Orientation: This is required for all students. Students entering the program without a CAMPEP accredited MS degree will take the orientation at the beginning of their second year in the program. Those entering the program with a CAMPEP-accredited MS degree will take it upon matriculating into the program.
2. A teaching pedagogical orientation provided by the course master or other teaching mentor before commencement of the MTE: This orientation may include (but is not limited to) the following:

- A review of expectations and/or benchmarks for the student's MTE
- Discussion of how to address student/trainee queries and/or issues
- Discussion of student/trainee evaluation philosophy and approaches

Mentored Teaching Experiences (MTEs)

Assistant in Instruction (AI)

An Assistant in Instruction (AI) is a PhD student who is directly engaged in the organization, instruction, and/or support of a semester-long course *primarily taught by a faculty member.* An AI receives mentorship from a faculty member related to best practices in classroom engagement, instruction in the field, interpersonal engagement, and other relevant skills. Students and mentors complete a mentorship plan prior to the start of each AI experience. To complete each AI assignment and to ensure that it applies toward their degree requirements, students must register for the appropriate course number for each semester of engagement. Refer to the "Required Pathways for Completion" section below for course numbers and details.

For all PhD Students: 10 MER units are required in the form of acting as Assistant in Instruction.

Full-time PhD Students: The 10 MER units are achieved by acting as an AI in one of the required core medical physics classroom or laboratory courses listed below. Duties may include the following (depending on the specific course/course master):

- Attendance of class/laboratory sessions
- Preparation of and/or grading of homework
- Preparation of and/or grading of exams
- Leading weekly discussion sections
- Setup and/or aid with performing laboratory or practica sessions
- Other course specific elements as discussed with the course master

Part-time PhD Students: The 10 MER units can be achieved by either acting as an AI as described for full time PhD students or may pursue an alternate AI pathway. The alternate AI pathway is allowed if the part-time PhD student is a full-time WashU employee and their professional duties include teaching and/or training of residents or training and/or providing continuing education to Washington University in St. Louis or BJC faculty or staff. In these instances, students may propose a 10 MER equivalent (~150 hours total) project spread over one or two academic semesters. These projects must be medical physics education focused and may be classroom-style, small/group individual

training style, or other proposed structure. Students who wish to pursue the alternative pathway should identify a faculty mentor, and craft a minimum 500-word proposal submitted no less than 6 weeks before the commencement of the MTE. The proposal must describe the educational need and focus of the AI project, the student's role(s) as AI in the project, and the role of the selected mentor. The proposal should then be approved by both the identified MTE mentor and Program Director before the alternative AI project can commence.

Students in the program typically perform one AI experience for 10 MER units after completion of their PhD qualifying exam. Students should complete the AI experience their second or third year of the program. Students who enter the PhD program directly from the MSMP program at Washington University in St. Louis who have already achieved the equivalence of passing the qualifying exam when entering the program are allowed to complete their MTE within the first two years of joining the PhD program. For all students, a one-year extension may be allowed in exceptional circumstances by student request. This request must be approved at the discretion of the program director.

Required Pathways for Completion

Students work with their faculty mentor and their Director of Graduate Studies to plan how and when they will complete their MERs. Students register during the normal registration period for courses in accordance with one of these approved pathways.

- Preparatory Engagement

MGS 8010	Take one time

Optional Activity: Teaching Intensive Pathway (TIP)

The TIP is an optional pathway for those students whose career interests lie in academia or another field that would benefit from extended teaching experiences. This immersive experience allows students to further explore the breadth and depth of teaching best practices and pedagogy related to their respective field. Students who are interested in participating in this elective experience must formally request to participate, which is subject to program approval. Due to this experience being an elective, unpaid experience, students who participate in the TIP will not receive compensation.

Students who successfully complete their AI requirements and have interest in pursuing additional teaching opportunities. The TIP can be completed in any of the courses listed above, however, there must be space for an AI in the course in a given semester, as preference is given to those individuals who have not completed their required MTE. In addition, students may be allowed to participate as an AI in classroom-based resident training courses. In all instances, students must obtain permission from their Thesis Advisor and the Program Director to undertake additional AI opportunities.

Optional Pathway

MGS 8010	Take two times