

You are the advisor for a doctoral qualifying student.

1. Have a problem that you want the student to solve?
2. Either convey the open-problem to the student directly; or have the student “discover” it after some suggested literature search and broad hints from you.
3. Suggest to the student two area and two skills courses most closely related to this research problem.
4. Mentor the student through the research process based on your style.
5. When you feel that the student has mastered the research process to the point that s/he can independently do literature survey, problem identification, and preliminary solution needed for the preliminary examination, schedule the student’s presentation and oral examination.
 - a. If the student has published a paper on this research, and s/he wrote most of the paper independently, this paper can serve as the written report.
 - b. Recall that for preliminary examination, the student needs to perform literature search independently, to be able to identify a broad set of open problems from this literature search independently. You will help focus on a smaller set of open problems (the one, if possible). A few high level strategies for the problem solution with an intuitive ranking of these solutions with respect to ease of experimentation/viability of proof strategies can also be expected. If you think that the student is ready to undertake these activities, it is reasonable to certify him/her “qualifying-ready”.
 - c. Ask the student to prepare a presentation of approximately 30 minutes focused more on the process – literature survey (includes the 2 area and 2 skills courses), why a specific open problem, a set of viable solution techniques, and the adopted solution technique. Think of it as a preliminary examination more focused on technical paper review, and less on a matured solution or thesis proposal.