PhD Qualifying Process Department of Geophysics

As set forth in the Colorado School of Mines Graduate Catalog, within the first two calendar years after enrolling into a PhD program a student in either Geophysics or Geophysical Engineering is required to “demonstrate the potential for successful completion of independent research and enhance the breadth of their expertise by completing a Doctoral Research Qualifying Examination.” Students in these degree programs demonstrate this through a two-part qualifying exam.

**Qualifying Exam, Part I**

1. Under the supervision of a Geophysics faculty member, the PhD student performs research that shall result in a manuscript to be submitted in a peer-reviewed journal. This submission of the manuscript must occur prior to a student’s scheduling Part II of the Qualifying Exam (Thesis Proposal Defense). The student shall defend the manuscript in front of his supervising committee and peers in a public defense of the research. See the Mines Graduate Catalog for rules governing defenses.

2. Research conducted for a masters thesis at CSM may be used to generate a manuscript that is submitted for publication and defended as described above to meet the requirements for Part I of the Qualifying Exam.

3. Research conducted for a masters thesis at an institution other than CSM can also be used to generate a manuscript that is submitted and defended to satisfy Part I of the Qualifying Exam, provided there is a CSM Geophysics faculty member who is willing to supervise the student in this activity.

**Qualifying Exam, Part II**

1. Under the supervision of the advisor and the thesis committee, a PhD student researches and prepares a thesis proposal in a format that is consistent with formal proposals submitted for funding either (a) to agencies such as NSF, or (b) to industry. A thesis proposal will normally include, but not be limited to, at least the following elements:

   - Project Summary/Abstract
   - Project Narrative, including:
     - Introduction. What is the research problem/question?
     - Background. Why is this problem important? What related work has already been done by others? What are the key references describing this
previous work?
  o Outline. What are the key steps or stages in this research?
  o Give a brief description of each.
  o Method. What approach or method(s) will you use to solve the research problem?
  o Obstacles. What significant obstacles or challenges do you anticipate that could prevent you from success, and how do you expect to overcome them?
  • Budget. Assume you are not already funded, what is an appropriate budget to cover your costs in performing this research?
  • Timeline. What is the timeline for the research, including your estimates of key milestones, decision points, defense, graduation?
  • Publications. How many publications do you imagine will be generated by this thesis, and on what aspects or sub-topics of the overall research?
  • Bibliography and references cited.
  • Biographical sketch.

2. The student shall defend the manuscript in front of his supervising committee and peers in a public defense of the research.

3. The Geophysics faculty believes that a PhD student should work more independently on the thesis proposal and require less supervision than for Part I of the Qualifying Exam.