

**CPE Graduate Degree Programs**  
**Preliminary Research Examination Policy**  
**{Last revised on March 3, 2016}**

The preliminary research examination (prelim) is administered to all C&PE graduate students requesting admission to the C&PE Ph.D. program. Students taking this exam will have a) completed the graduate core courses (five in ChE, four in PE concentration) and b) satisfied the GPA standard specified for entrance to this program. Successful completion of the prelim exam admits the student into the Ph.D. program and bestows 'Ph.D. aspirant' status.

The prelim is given to determine the student's aptitudes for

- 1) Independent, original critical thinking
- 2) Planning and organizing a research program
- 3) Use of previous work and background literature to demonstrate
  - a) understanding of the planned research within the scope of the larger project, and
  - b) ability to conduct that research
- 4) Application of fundamental theory (e.g. equations) to the proposed work
- 5) Effective communication of technical work

**Timeline:**

Students take the prelim after their first calendar year in the C&PE graduate program (usually in early September) as set by the research advisor in cooperation with the Graduate Advisor. Prelims for each entering class will usually be scheduled in a single two week period. The research advisor gives the student at least one month advance notice of the exam date. The student and research advisor may request an extension of up to one year from the Graduate Standards Committee (GSC) if they agree the student's communication ability is not yet adequate or if non-academic issues exist (e.g. illness).

**Grade Requirements:**

To qualify for this exam, students with a chemical engineering focus must earn a 3.2 GPA in the five core courses. Students with a petroleum engineering emphasis must earn a 3.2 GPA in their four core courses. All students must have a cumulative GPA of at least 3.25. Students who do not complete the graduate core courses during the first year will be reviewed on a case by case basis by the GSC; those students may be granted an extra semester or year to complete the core. Student who fail to meet the GPA requirement or fail to complete the exam within allotted time may be transferred to the M.S. track.

**Exam:**

The prelim consists of a written report (5 pages maximum, double spaced); oral presentation (15 min maximum); questions by the examining committee (25 min maximum). The written and oral portions are prepared by the student only with no review or editing by the research advisor or any other person. The written report is submitted to the committee at least one week before the oral exam. Questions asked by the committee will be directed towards determining the five aptitudes listed above. As this is not a mandated activity of the University or School of Engineering, the Graduate Advisor will be responsible for its execution.

**Committee Composition:**

A regular doctoral student oral exam committee will include five total members according to university policy. Four members from the student's department and at least one member from outside

the student's department which is called the "Graduate Studies Representative." The examining committee for this exam will consist of the student's full doctoral dissertation committee plus a member of the C&PE faculty not already on the student's dissertation committee. This extra committee member is called the "Graduate Standards Committee Representative" and is typically the chair of the GSC, the Graduate Director, or the Graduate Advisor.

**Evaluation:**

Evidence of each aptitude will be measured by the composite performance on the written, oral and question portions of the exam. Each aptitude will be graded on a scale of 1 to 3, with definitions of each level similar to ABET evaluation of skills. Specifically, a grade of

- 1 = Does not demonstrate the aptitude
- 2 = Shows demonstrable evidence of acquiring the aptitude
- 3 = Shows ability to utilize aptitude to further research goals

To pass the prelim, the student must achieve a score of 2.0 or higher on all five aptitudes. The evaluation will be recorded on the single sheet Prelim Evaluation Form [sample on page following this document] and signed by the advisor. All prelim evaluation forms will be submitted to the GSC and the external prelim committee member. Following approval and signature by that group, copies are made for the advisor and the student within two weeks of exam completion. The original form is retained in the student's academic file. Any required remedial action will be taken within the same semester.

**Outcomes:**

PASS, PASS with Restriction [PWR] (specific deficiency -- one aptitude score is below 2.0); FAIL (two or more scores below 2.0). The PWR status must be corrected by actions set and documented by the examining committee within the same academic semester. Remedial action taken for PWR status will be documented on the second page of the Prelim Evaluation Form, and signed/dated by the research advisor. If the deficiency is not corrected and documented, a grade of FAIL is assigned. FAIL status requires the student to retake the prelim within four months of the initial exam. This examination can be repeated once. A second failure automatically transfers the student to the MS degree program.

**C&PE Preliminary Exam of Graduate Research**

Committee Evaluation Document

**Student Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Grading Scale:

1 = Does not demonstrate the aptitude

2 = Shows demonstrable evidence of acquiring the aptitude

3 = Shows ability to utilize aptitude to further research goals

Evaluators: Enter average committee grade and supporting observations from written report, oral presentation and/or responses to questions

**Aptitude 1** -- Independent, original critical thinking: Committee Grade \_\_\_\_\_ [1 – 3]

**Aptitude 2** -- Planning and organizing a research project: Committee Grade \_\_\_\_\_ [1 – 3]

**Aptitude 3** -- Use of previous work and background literature to show:

a) Understanding of the planned research within scope of project

b) Ability to conduct that research

Committee Grade \_\_\_\_\_ [1 – 3]

**Aptitude 4** -- Application of fundamental theory (e.g. equations) to the proposed work:

Committee Grade \_\_\_\_\_ [1 – 3]

**Aptitude 5** -- Effective communication of technical work:

Committee Grade \_\_\_\_\_ [1 – 3]

**Total Grade:** \_\_\_\_\_ **PASS / PWR / FAIL**

Comments:

**Approvals:**

(Advisor) \_\_\_\_\_

(GSC) \_\_\_\_\_

**C&PE Preliminary Exam of Graduate Research**

>>> Remedial Assessment Document (for second attempt)<<<

**Student Surname:** \_\_\_\_\_ **Reassessment Date(s):** \_\_\_\_\_

**Grade:** \_\_\_\_\_ **PASS / PWR / FAIL**

**Grading Scale:**

1 = Does not demonstrate the aptitude

2 = Shows demonstrable evidence of acquiring the aptitude

3 = Shows ability to utilize aptitude to further research goals

**Deficient Aptitude number:** \_\_\_\_\_ **Revised Committee Grade** \_\_\_\_\_ [1 – 3]

Specific task(s) used to demonstrate aptitude competency:

Task outcomes observed by committee:

**Approved: (Advisor)** \_\_\_\_\_

**(GSC)** \_\_\_\_\_