

Student Learning Outcomes for Ph.D. in Chemistry

1. Knowledge

Thorough understanding and competency at the Ph.D. level in a specific area of chemistry is assessed by performance in (1) a very flexible course-work program of 18 credit hours, (2) two 50 minute seminars for credit following practice in non-credit seminars, (3) a written cumulative examination (8 monthly exams in an academic year) section of the preliminary examination, (4) a research proposition oral examination (based on a written original research proposal) section of the preliminary examination, (5) completion of an extensive original research project (requiring at least 50 credit hours and usually approximately 70 credit hours), (6) the final oral examination on the Ph.D. dissertation, and usually (7) assigned duties as a graduate teaching assistant.

2. Skills

The ability to apply knowledge through critical thinking, inquiry, analysis, and communication is assessed by performance in (1) two 50 minute seminars for credit, (2) the written cumulative examination section of the preliminary examination, (3) the research proposition oral examination section of the preliminary examination, (4) completion of an extensive original research project, (5) the final oral examination, (6) usually one or more oral or poster presentations at a scientific conference, and (7) usually being a co-author of one or more peer-reviewed scientific publications.

3. Attitudes

Awareness of professional responsibility (integrity, ethical behavior, ability to

work with diverse groups of people) begins in the orientation program with the department head's welcome to our new graduate students and two sessions on being a scientist. Chemistry is an international science practiced by an international community. The chemistry graduate program automatically generates experience with diversity due to the desire and the necessity to have many international students to meet our research and teaching obligations. The activities listed in the sections on knowledge and skills take place in a quite diverse environment.