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CHMY 652.01: Original Research Proposal

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Chemistry 652: Original Research Proposal
Fall Semester 2021

Professor: Mike DeGrandpre, Chemistry Building 318. Office hours: Drop in anytime or phone (x4118) or email (michael.degrandpre@umontana.edu) to make an appointment.

Course objective: To develop an original research proposal based on a novel chemical problem selected by the student.

Learning goals and outcomes: In developing into a Ph.D. level scientist, students need to have opportunities to explore and "sell" their own research ideas. Students who take the course will have a better understanding of what is required to be an independent scientist with a leading role in a research program in an industrial, academic or governmental organization.

Grading: Credit/no credit. Credit is awarded when your Ph.D. committee approves your original research proposal (ORP) as a pass with no further revisions required (see below). If you do not complete your proposal this semester, your course grade will be an Incomplete. It will change to an F after one academic year if your ORP has not been approved by your committee by that time. Thus, your ORP must be approved by your committee no later than the end of the Autumn 2021 semester to earn credit in this course and satisfactorily meet the ORP requirement of the Chemistry Ph.D. program. If you earn an Incomplete this semester, be sure to remind your committee chair to send me a message stating that you passed the ORP requirement when that occurs.

Course overview: As described in our Ph.D. requirements (https://hs.umt.edu/chemistry/graduate/phd-requirements.php), chemistry graduate students will propose an original research topic to their reseach committee at the beginning of their third year in the program. From the guidelines, "The proposal should not be directly related to the student's dissertation research or other research projects in the thesis advisor's laboratory." Approval of the original research topic will be required early in the semester to successfully complete the course.

The first few weeks of the course will be used to present strategies for effective development of a research proposal in the chemical sciences. Students will be led through federal agency-specific requirements for proposal submission, e.g. as provided by NSF Fastlane. Guidance will also be given for the preparation of other requirements such as budgets, CVs, broader impacts, etc. Preparation of the proposal should begin immediately after approval of the topic. A proposal using NSF or NIH (or other agency) required formats will be written, with feedback from the student's research advisor and course instructor.

During the last half of the semester, students will present their proposal in front of the public and their research committee. A copy of the written research proposal and abstract must be delivered to each committee member at least ten days before the presentation date. At the same time, a one-page abstract of the proposal, including key references, must be distributed to all other chemistry faculty and graduate students.The oral research proposal examination will have the following format:

- A 30-40 minute presentation open to all faculty and students
- 15 minute question/answer period open to the general audience
- 1-2 hour question/answer period conducted by the committee and interested UM faculty (the general audience will be asked to leave)
- Candidate excused and committee votes to pass or fail (Credit/No Credit)

The examination chair (an advisory committee member other than the thesis advisor) will supervise the question period, arranging that each committee member and interested UM faculty member has adequate opportunity to question the candidate. Although most of the questions in this examination will be concerned with the proposal, questions on cognate and minor areas may, and likely will, be asked.

Evaluation: The student's advisory committee determines whether the original research proposal and oral examination are acceptable in every respect: independence from dissertation topic, novelty, content, and demonstration of chemical knowledge and intuition. Only advisory committee members vote on the performance of the candidate in the examination. The candidate and guests are excused before the vote is taken. There are three possible outcomes:

- The student passes if there are three or more votes to pass.
- The student fails and the committee affords a second examination based on the same or a new research proposal.
- The student fails outright and is not afforded a second examination.

Failure of the examination outright or on a second attempt will render the student ineligible for a Ph.D. in our program. After passing the oral research proposal examination, the candidate will furnish a copy of the research proposal to the Department.

COVID-related items

- Mask use is required within the classroom
- Students should not congregate outside the classroom before and after class
- Specific seating arrangements will be used to ensure social distancing and support contact tracing efforts
- Drinking liquids and eating food is not permitted within the classroom
- Stay home if you feel sick and/or if exhibiting COVID-19 symptoms

- See the UM Coronavirus Website for updates: https://www.umt.edu/coronavirus