# SYLLABUS

# Chemistry 490/490W (Senior Research)

Chem 490 may be taken only with the consent of the Chemistry Department and is repeatable for credit. Chem 490W requires Chem 490 as a pre- or co-requisite. Chem 490 requires Chem 195 as a pre- or co-requisite.

**Course Goals and Rationale**: This chemistry research course involves faculty-directed research for senior students. Although details of the experience will differ amongst the various faculty-led research groups, nevertheless, in general, the course is intended to: (1) engage student interest in original and forefront scientific research, (2) broaden and build student laboratory and/or computational skills, and (3) help the student develop observational, deductive, creative, and problem-solving skills in the chemical sciences.

**Research Activities**: Each student will be assigned a research project, which is selected through discussions with the faculty mentor. Projects will typically align with some aspect of the faculty member's overall research program. The research may involve any combination of the following activities: (1) laboratory experiments, (2) computations, (3) field-work, and (4) reading and contextualization of relevant scientific literature. In addition, the student will participate in research discussions with the faculty mentor and/or other research group members.

**Credit Hours**: Chem 490 is a variable-credit course (1−3 credit hours per semester). The W&M Credit Hour Policy requires each academic credit to engage students for at least 45 hours of in-person faculty instruction and outside work per credit. Therefore, student activity over the semester in Chem 490 is at least 45 hours for 1 credit, 90 hours for 2 credits, or 135 hours for 3 credits. This activity includes both advisor-supervised and independent activities. Enrollment in Chem 490 requires attendance at weekly departmental seminars.

**Advisor/Student Meetings**: The advisor and the student will meet for a minimum of three hours over the course the semester (the amount to be included as part of the total student hours). Part of this time will be used for training of the student in relevant techniques and associated safety protocols.

**Chem 490W**: Chem 490W is a zero-credit course that satisfies the Chemistry major's writing requirement. Successful completion of Chem 490W requires writing a paper of at least 2000 words on the topic of the student's research and its context. The paper must include a summary of the research and its context that is accessible to a non-expert.

**COLL 400**: The COLL 400 requirement is satisfied so long as at least three credits of Chem 490 (total) and Chem 490W are completed.