Course Description: An experience planned cooperatively between an Honors Scholar, their biology Honors faculty advisor, and their Honors Board. The biology faculty member serves as the primary supervisor for the Honors Scholar's research project. The student is expected to complete their research and Honors thesis during this portion of the Honors experience. The research is expected to contribute to some type of novel discovery or understanding within the Honors Scholars selected field of study. Honors status will be assessed and reviewed at various points during the Honors research project by an Honors Committee and select members of the biology department (see below).

Prerequisite: Successful completion of BIO 201, 202, 203, 206, BIO 662, HON 201, and a minimum GPA of 3.500 (total GPA, and GPA of courses in the major) are required to be considered for Honors Research.

Course Objectives: The outcomes of the biology honors research are achieved in students who:
1. demonstrate an ability to apply biological concepts and principles learned from Westminster courses in an independent and productive manner;
2. utilize observational, investigational, and critical-thinking skills, including the ability to evaluate, interpret, and assess information and data with minimal guidance from the Honors faculty advisor;
3. acquire and utilize knowledge and skills that enhance future success within the corresponding field;
4. demonstrate initiative, responsibility, and accountability;
5. demonstrate a capacity for decision-making;
6. communicate their experience using a poster or oral presentation at a regional or national undergraduate or professional conference.

Course Grade: A grade will be earned for each completed semester of Honors research and will be determined by the Honors Advisor and Honors Board members.

Course Assignments. In accordance with the listed course objectives students must complete the following assignments

Honors Thesis: Following the guidelines provided by the Honors Program the student will develop and write a thesis describing their research question, background information, methods, results and discussion.
Honors Thesis Defense: The will orally defend their thesis in front of the Honors committee, other faculty and students. Additional meetings with the committee during the semester are recommended but not required. Organization of the time and place of these meetings are the responsibility of the student.

Conference Application: The student is expected to develop an abstract based on their research for submission to the ASBMB (American Society of Biochemistry and Molecular Biology conference. Guidelines for the abstract follow those provided by ASBMB.

Laboratory Notebook: The student is expected to maintain a detailed log of all research performed in the laboratory for their pilot experiments. This log should be created using a quad lined composition style notebook.

Work Log: The student is expected to maintain a weekly log of hours spent working on their proposal and in the laboratory. This log should be kept in the back or front of their laboratory notebook.

Status Meetings with Honors Advisor: The student will meet with their Honors Advisor on a weekly or bi-weekly schedule as deemed appropriate. These meetings will be used to update the advisor on research and writing progress in order to troubleshoot and improve student work. The student is expected to come prepared with an organized powerpoint if presenting data or other relevant documentation and materials as appropriate to the topic of the meeting.

Course Grade: A grade will be earned for each completed semester of Honors research and will be determined by the Honors Advisor and Honors Board members. Each of the following course assignments are taken into consideration when determining the students grade; however the semester grade is largely determined by the thesis and defense.

Honors Thesis
(Quality of content, writing and research, will include feedback from committee)

Honors Defense
(Preparation, quality of presentation style and content, will include feedback from committee)

Conference Abstract
(Quality of content, writing and research)

Lab Notebook and Work Log
(Completeness and quality, completion of requisite hours)

Status Meetings
(Preparation and effort)
**Due Dates:** The student must adhere to the following preparation schedule

**THESIS**
- Thesis Introduction Draft to Advisor: Monday 9/11/17
- Thesis Methods Draft to Advisor: Monday 9/18/17
- Thesis Results Section Draft to Advisor: Monday 9/25/17
- Thesis Discussion Draft to Advisor: Monday 10/2/17
- Thesis Full Draft to Advisor: Friday 10/20/17
- Thesis Final Version to Advisor: Monday 11/13/17
- Thesis Submitted to Committee: Monday 11/20/17 (before Thanksgiving)

**DEFENSE**
- Thesis Defense Scheduled by: Monday 11/6/17 (select date week after Thanksgiving if possible)
- Draft PowerPoint to Advisor by: Two weeks before thesis defense date
- Practice Defense for Labmates by: Monday before thesis defense

**CONFERENCE ABSTRACT**
- Abstract to Advisor by: Monday 10/16/17
- Abstract Submitted to ASBMB by: Friday 11/2/17