

## Biology Senior Comprehensive Exam – Capstone Instructions for Students

**Overview.** The Capstone is an option for seniors in place of the Biology Senior Comprehensive Exam. This option is available only for students who have conducted a substantial original biology research project. All other students must take the Senior Comprehensive Exam. The Capstone submission deadlines are at the start of the fall and spring semesters, so the research must have been fully completed before the start of the semester (no late submissions). Evaluation of the report takes several weeks, and students are given their results at least 3 weeks prior to the date of the Senior Comprehensive Exam, so that students who fail the Capstone may take the exam. Below are the Capstone requirements and deadlines for the 2025-2026 academic year.

**Department of Biology Capstone Requirements.** Student research projects must meet all of the below requirements to qualify for the Capstone option for the senior comprehensive exam.

- The student's research project is **biological** and draws upon a core concept in biology, in at least one of the areas of: anatomy, physiology, cell biology, molecular biology, ecology, evolution, and/or computational biology. Because the Capstone counts for the Biology Senior Comprehensive Exam, it must have substantial biological content, particularly in the research questions and data collected. Projects where primary data collected were survey responses and/or demographic data are not eligible for the Capstone. If you have questions about whether your project qualifies as a biology project, please reach out to Dr. Farina ([stacy.farina@howard.edu](mailto:stacy.farina@howard.edu)).
- The student engages in a **mentored research experience** for a **minimum total of 30 hours**.
- The student engages in the process of developing and designing the study.
- The student collects and analyzes data.
- The student is trained in at least one of the following technical skills: Statistical analysis, coding, image analysis, video analysis, microscopy, aseptic technique, PCR, DNA sequencing, western blot, or similar skill.
- The student is trained in at least one of the following presentation skills: Technical writing, scientific communication, oral presentation, poster presentation
- The final report of the project is in the format of a scientific research paper or an oral or poster presentation that would be suitable for an undergraduate research conference.

**Capstone projects must be done during your time as an undergraduate at Howard University and can arise from the following types of activities:**

- (1) A biology research project in the Department of Biology (e.g., Biol 390 or Honors Thesis).
- (2) A semester-long biology course research project. Eligible course research projects are typically those that last throughout the entire semester, involve conducting original research projects, and end in a final research symposium. Only a small number of our courses include research projects eligible for the capstone. Projects must meet **all of the above criteria**, which must be verified by the course instructor. Projects associated with Biol 101, Biol 102, and Biol 200 (introductory sequence) are **not eligible** for the Capstone.
- (3) A biology research project conducted during a summer/semester internship at Howard or at another institution, agency, or company.
- (4) Other possible activities. Please reach out to [stacy.farina@howard.edu](mailto:stacy.farina@howard.edu) if your research experience does not fit into the above categories.

**For the Capstone option for the Biology Senior Comprehensive Exam, please submit the following materials via Canvas by September 5, 2025 (Fall) or January 23, 2026 (Spring).** A full timeline is included at the end of this document.

- (1) Capstone Report
  - a. Format: A written scientific report, a slideshow presentation, or a research poster that would be appropriate for a scientific research conference.
  - b. Must contain: Background/introduction, Methods, Results, Discussion, and List of References
  - c. In-text citations must be included, and all cited references must be listed in the List of References with full bibliographic information. There are no specific formatting requirements, but all information must be included (e.g., for research journals: Authors, Year, Title, Journal, volume, and page numbers).
  - d. There are no other specific formatting requirements. Work with your research mentor to ensure that the report, slideshow, or poster follows formatting conventions in the relevant scientific field.
  - e. If you use artificial intelligence, machine learning, and/or LLMs (large language models, such as ChatGPT or Grammarly AI) in the preparation of your report, you must disclose this with a brief statement that describes how you used it (see next page for details).
- (2) Number of hours worked on the project (numerical value only – no breakdown required)
  - a. Include time spent on activities such as reading background literature, designing experiments, collecting data, analyzing data, creating figures

and graphs, putting your results in the context of the literature, and report writing.

(3) Email address of your research mentor

- a. Email address must be institutional/work email
- b. Mentor will be asked to verify **number of hours worked** and that **your report is your own, independent work**

**Policies on plagiarism, fabrication, and generative AI.** Below is a list of policies regarding academic conduct for the Capstone report. If your report is found to violate one of these policies, you will receive a failing grade for the Capstone, and you will not be allowed to submit a Capstone report in the future. At that point, your only option will be to take the Senior Comprehensive Exam.

**Plagiarism is strictly forbidden**, and we reserve the right to use TurnItIn, SafeAssign, and other tools to identify instances of plagiarism. For the purpose of the Capstone, “self-plagiarism” (submitting your own previous work) is fine and expected, in the sense that you should feel free to submit your Biol 390 report, thesis draft, or final report from an internship as your Capstone Report. If your report is found to contain plagiarized text (copied from any source outside your own brain and/or lacking proper citation), you will fail the Capstone and will only be allowed to take the exam option.

**Fabrication and falsification of research is considered severe academic misconduct.** If your report is found to contain any fabricated or falsified information, regardless of the source of the issue, you will fail the Capstone and will only be allowed to take the exam option. This includes, but is not limited to: AI hallucinations, misleadingly photoshopped figures, data that is fabricated or falsified, and making false claims about the nature or source of your data.

**Using generative AI (e.g., ChatGPT and Grammarly AI tools) in the preparation of your report is generally discouraged.** However, if you use these tools, you must disclose how you used them in a brief statement. Be aware that generative AI can introduce false information into your report, including fabricated background information and fake citations (called “hallucinations”). You are solely responsible for the content of your report. If your report is found to contain such fabricated information, you will fail the Capstone and will only be allowed to take the exam option.

## **2025-2026 Capstone Timeline and Deadlines**

**August 2025** – Sign-ups begin to enroll in the Canvas course where information about the Capstone and Senior Comp will be hosted. Students may start submitting capstone reports once enrolled on Canvas.

**September 5, 2025** – Deadline to submit capstone report (along with mentor contact email and number of hours worked on project)

**September 12, 2025** – Faculty graders begin grading. Mentors are contacted to verify the information provided by the student. Students are notified if their report does not meet the eligibility criteria.

**September 29, 2025** – Grades are due from faculty graders; Deadline for research mentors to respond and verify information provided by student.

**October 1, 2025** – Students are notified of pass/fail for the capstone. Students that failed should begin preparing to take the exam on October 25.

**November 21, 2025** – COAS is notified of the Senior Comprehensive Exam and Capstone scores. Please note that it can take several weeks for this to be reflected on BisonHub.

**December 2025** – Spring sign-ups begin to enroll in the Canvas course where information about the Capstone and Senior Comp will be hosted. Students may start submitting capstone reports for the spring.

**January 23, 2025** – Deadline to submit capstone report (along with mentor contact email and number of hours worked on project)

**January 27, 2025** – Faculty graders begin grading. Mentors are contacted to verify the information provided by the student. Students are notified if their report does not meet the eligibility criteria.

**February 20, 2025** – Grades are due from faculty graders; Deadline for research mentors to respond and verify information provided by student.

**March 2, 2025** – Students are notified of pass/fail for the capstone. Students that failed should begin preparing to take the exam on March 28.

**April 17, 2025** – COAS is notified of the Senior Comprehensive Exam and Capstone scores. Please note that it can take several weeks for this to be reflected on BisonHub. Spring graduates can be cleared as soon as COAS is notified of the results and all other degree requirements are completed, even if BisonHub has not been updated.