Johns Hopkins University  
Krieger School of Arts and Sciences  
Graduate Program in Geographic Information Systems

Capstone Guidelines (course 430.800)

Students enrolled in the Geographic Information System (GIS) program are required to complete a Capstone project, under the direct guidance of a qualified mentor and under the supervision of the 430.800 Capstone course instructor. The topic and methodology chosen for the Capstone project must be related to the student’s course work and interests and should be considered before enrolling in the course. Ideally, the Capstone will be a culminating project, integrating material studied in the program.

Goals of the Capstone Project:

- Provide a real-world problem identification and GIS solution-driven experience for students;
- Provide an opportunity to work collaboratively with a mentor, who will be a member of an external organization or JHU faculty;
- Integrate skills and knowledge gained from previous courses and experiences;

Prior to conducting the Capstone project a student must have completed at least eight (8) courses toward the degree and should be in good academic standing in the program. A student taking 430.800 Capstone Project for GIS needs to plan well in advance of conducting the project and registering for the class. Potential topics, data, software, and methods should be considered to ensure completion of the capstone during the enrolled term. See the time frame and description of steps outlined below.

Capstone Project – 2020 Schedule

<table>
<thead>
<tr>
<th>Step</th>
<th>Spring 2020 14-week term</th>
<th>Summer 2020 **12-week term</th>
<th>Fall 2020 14-week term</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>Initial meeting with Capstone course instructor</td>
<td>January 21</td>
<td>May 27</td>
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<td>2)</td>
<td>Obtain commitment from mentor*</td>
<td>February 4</td>
<td>June 3</td>
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<td>3)</td>
<td>Draft Proposal</td>
<td>February 11</td>
<td>June 10</td>
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<td>4)</td>
<td>Final Proposal</td>
<td>February 25</td>
<td>June 24</td>
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<tr>
<td>5)</td>
<td>Draft Project</td>
<td>March 31</td>
<td>July 22</td>
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<tr>
<td>6)</td>
<td>Final Project</td>
<td>April 28</td>
<td>August 12</td>
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1) **Communicate with Capstone (430.800) Course Instructor.** The purpose of the discussion (email is acceptable) is to outline preliminary ideas with an aim to focusing the topic into a project that is doable in the one semester time frame and focuses on geospatial solutions, identify possible qualified mentors, and review the course timeline. Initial contact should be made by email until the Blackboard course container is available.

3) **Choose a Mentor.** The mentor may be a JHU faculty member, an appropriate person from the student's place of work, or any expert with appropriate credentials. The mentor is the person who will guide the substantive progress of the capstone and, ideally, the mentor is currently involved in some aspect of the proposed study. Mentors who have not previously worked with Johns Hopkins must be approved by the course instructor (please provide a CV/resume via email to the course instructor for approval and department processing). The course instructor will communicate directly with the mentor regarding their task in working with you (the student), deadlines for the project, the grading policy, etc. The GIS program does offer a stipend to mentors, and the course instructor and department will arrange for this directly with the mentor. Please see the separate document on ‘Mentor Guidelines.’

4) **Submit a Draft Proposal.** The proposal is a detailed description of the research, its objectives, the GIS technology and methods to be used, data sources, and the anticipated results. The draft proposal can be preliminary, but must be submitted by the above date. Students should work closely with their mentor to complete the proposal. The length of the proposal should be about 2 pages. Included data sources and citations as appropriate.

5) **Submit Final Proposal.** The proposal includes a statement of purpose with a clear definition of the goals of the project and the rationale for these goals, background information, suggested data sources to be used, a detailed explanation and justification of the GIS methodology and techniques to be used, a description of the anticipated results and outcomes, anticipated final visualization of the output, and a bibliography. An adequate proposal is usually 4-5 pages long and includes preliminary data sources and references.

6) **Draft of Project Report.** This is to be submitted to the mentor and course instructor by the above dates. Note that the mentor may require additional deliverables during the project. An adequate project length is 15-20 pages, double spaced, not including any map inserts or the title page. Students are highly recommended to label, as appropriate to their project, the sections of the report according to standard scientific format, Introduction, Statement of the Problem, Study Area, Data, GIS Techniques and Methods, Results and Discussion, Conclusions, and Cited References. Include a title page and table of contents.

7) **Final Project Report and Deliverables.** The following are the deliverables for the final project:

- Final Report as described above;
- Executive Summary to be included in the beginning of the Final Report;
- Map Portfolio – depending on the visualization method chosen, a map portfolio containing maps relevant to the project should be developed. For the purpose of submission, these may include PDF maps, web mapping applications or other visuals;
• Presentation – students are strongly encouraged to present their project at a local GIS conference or venue. If this is not possible, consult with the instructor for alternatives.

The mentor should approve the final project report and the map portfolio at least 2 days before the end of the semester and suggest a grade to the course instructor. The student should follow up with the mentor to make sure any edits or change required are submitted.

**Schedule Note:** Capstone enrollments are available year-round. However, summer semesters are currently 12 weeks in length, so you must be prepared to have a more accelerated work schedule if you are completing your capstone during the summer term.

**Topic Note:** While we are currently unable to share completed, previous capstone papers due to privacy concerns, a list of previous capstone titles and topics is available on the GIS website.

**Example capstone working schedule:**

Week 1. Identify and contact mentors. Draft proposal ideas/topics. Instructor review.

Week 2: Select topic and verify accessible data, software, hardware. Solidify mentor.

Week 3: Finalize mentor and submit CV/Resume to course instructor, submit draft proposal.

Week 4-5: Receive feedback. Revise draft.

Week 6: Final proposal, receive approval.

Weeks 7-10: Work on project.

Week 11: Submit draft project, receive feedback.


Week 14: Mentor and Instructor review. Mentor assigns grade.