

General Guidelines for the Semester-long Report

You will write a report describing your project, built over the course of this class. You'll first submit an introduction. I'll review it, and provide examples of aspects that need improving. These will only be examples, and you will need to review the entire submission to look for other instances of the same error, and fix it. Just addressing the specific instances I point out is usually not enough. Through these, we seek to improve your writing skills. The end report should be professional documents, similar to those you may well be writing during your career.

You will write the first assignment in a word processor, but for the second assignment you'll copy/paste that into an ArcGIS online Story Map. Subsequent assignments can be written directly in Story Map, although I find it more useful to write in a word processor for ease in editing, and then copy/paste into a story map.

We will provide rough guidelines for each writing assignment in separate instructions, detailing approximate length, sections, and content.

Your goal is to generate a clear, readable, concise, but complete final report. Each iteration should improve on the previous submission, and include a new section. Your documents should be free of spelling and grammatical errors. The quality of the writing counts.

The report is directed at an individual that does not have any familiarity with your work or the topic. Assume the individual knows there is such a thing as GIS and of hydrology, but doesn't know why mitigating runoff is important, nor much about the specific study area, nor GIS functions or methods. You do not have to define terms such as metadata, buffer, digitize, or GPS, but you do have to describe the goals, motivation, location, and other important details for each assignment. Write each section such that a person unfamiliar with the setting, question, and geography of your activity would be able to understand what you did, repeat the procedure, and believe your statements or conclusions. Some insights into the important factors and the general conclusions you draw from your analyses should be included.

You should describe your specific methods so that a person can evaluate or repeat your actions, but in a general way. For example, you need to state the type, resolution, date and source of the images you used for digitizing, the snap tolerance, and other defining characteristics of any methods used during data collection. You should not describe the icons or menus in ArcGIS, the name of each file you created, nor the specific ArcGIS commands and their sequence.

The methods section should not be a chronological narrative. By this I mean do NOT write in a style similar to:

ESPM4295

“First I used the buffer function to buffer roads with buff_dist of 30 and saved these in a file named rdbuf1, then I did the same with a buff_dist of 60 and saved that in rdbuf2, then I did the same with a buff_dist of 90 and saved it in rdbuf3. Then I used the overlay function with rdbuf1 and rdbuf2 and saved that in rdbuf_comb1.”

Rather, use the more general:

“Road buffers at various distances were required for my analysis. Roads were buffered at 30, 60, and 90 meter buffer distances. Resultant layers were overlain to create a nested set of buffer distances around roads.”

Do NOT use the names of specific ArcMap operations, as in “I used the Buffer tool” or “the CON functions was applied in Raster Calculator.” Rather, use the more general “I buffered point features ..” or “Values were re-assigned using a conditional function...”

You will need maps, tables, and/or other figures for most of the documents. This should include relevant photographs or figures from class or internet sources in the introduction, e.g., examples of rainfall/runoff, or development, or pollution. Exterior sources must be acknowledged in the figure caption. Most figures in the methods and later sections will be generated in ArcGIS from data you create or modify, some with word processing or drawing software, and some may be screen captures. The most important graphics and tables should be embedded in the main body text. Additional graphics and tables may be included in an appendix. At a minimum, the body of each report should include graphics showing the general and specific study area you analyzed, and graphics for each main data layer used for each of your analyses, and when you write the results section, the runoff for each combination of rainfall/mitigation, and the location and type of mitigation measures you implemented.

You must include section headings, but there are no fixed set you must use, these vary by the writing assignment. In most assignments you need to introduce the work, identify the goals, and describe the activity focus. You need to describe the activities or methods. Perhaps the hardest part will be a succinct explanation of the analysis methods and results, followed by a discussion of the importance, significance, and reasons behind your conclusions.

All figures and tables should have headings, all maps should have scale bars, north arrows, and descriptive legends, and all figures, maps, and tables should be referenced in the body of the report.

Report due dates are in the course pages and assignments.

ESPM4295

Some of the reports will require you to submit drafts, but you SHOULD NOT turn in your first draft. Rather, you should produce several “personal” drafts which you read and edit prior to each of the formal drafts you turn in. You should revise each draft, proofing and improving it yourself. You will also proof/evaluate another student’s work for at least one of the assignments. You will not assign a grade to your peer. However, you will be graded on the quality of your recommendations of the other student’s work.

I will emphasize the following criteria in evaluating each writing assignment:

Is the writing clear, concise, grammatically correct, and complete?

Is the report well-organized?

Do you have adequate, well-developed graphics that support your narrative?

Did you follow the instructions above, on not writing a chronological narrative, and not listing specific ArcGIS commands?

Was the work done well, meaning all data collected with apparent diligence, and the analysis appropriate and correct?

Are the work and report complete? Are all the parts there, including, appropriate figures, summary of metadata and/or other relevant information in appendices?

Does the report contain the appropriate amount of information? Is the report too detailed? , Is the report a personal narrative, or too vague?

Ask yourself the following questions: Are your methods described such that a person could reasonably evaluate what you did? Could they repeat your exercise, given they are adept with the hardware and software? Did you think about the results critically, and describe why you came to your results and conclusions? Did you think about how robust your results and conclusions were, and how different methods or approaches might change your results or conclusions? Are the graphics appropriate, informative, and attractive?

I’ve provided example documents on the course website. These are all longer than the work you’ll produce, because they were created by teams working on larger problems over a longer time and bigger areas, but they are good examples of the level of detail, the use of supporting figures and graphics, and the writing styles that will meet the needs of this report.

Formatting Guidelines

For the first draft in a word processor, 1.5 spaced lines, 10 or 12 point font, one inch margins. Subsequent drafts are in a Story Map, so choose one of their paragraph fonts.

I recommend you use the “Build from scratch” format option in Story Map, but you may choose one of the other templates.

You don’t need a table of contents or title page/section, although you do need a title and name.

Each section should have a heading. You may, but don’t need to, include navigation for the headings. New section headings are automatically in a bold, larger font once you change from the default paragraph formatting to a heading format.

I recognize that doesn’t let you fine tune spacing, so don’t obsess over this, but avoid any obvious large groups of blank lines, and the double or triple blank lines that often appear between paragraphs when you cut/paste.

You should include figure/map(s) in the introduction for your study area, and other illustrative figures help, e.g., flooding or water pollution, the a broad diagram of hydrologic model in your approach, or example mitigation measures. Figures in the body should include something that shows your existing conditions (e.g., canopy, buildings, landcover), and and results figures that show your base case runoff and modifications for each rainfall mitigation level.

All figures or tables should have a sequential numbered heading (figure 1, figure 2, table 1, etc.), a readable caption that describes figure contents, and all figures and tables must be referenced in the text.

You should wrap text above and below large figures, but you can wrap to the side of smaller figures.

Maps should have north arrows, scale bars, a descriptive title, and legend.

Writing on all figures should be readable. Note that effective font size in a figure is not the same as that you set in ArcGIS, because you may shrink a figure to fit in your report. Make sure the legends, titles, labels, and other writing in a figure or table are readable, the equivalent of a 9 point font or larger after formatting.

There should be no orphan headings, meaning that each heading near the end of a page should have at least three lines of the following section on that same page.

ESPM4295

You should have an appendix with figures and tables that provide the main information you generated, but that you don't want to include in the main document (e.g., individual maps of any input layers not included in your main body, sub-watershed runoff volumes, maps of all mitigation measures, individual maps of input layers, your detailed workflow/flowchart).