

Instructions for Your Individual Reports

You will write an individual report for your study area. Our primary purpose is to improve your skills in writing professional documents. The report is meant to approximate documents commonly produced by natural resource management professionals, including environmental consultants, Minnesota Department of Natural Resources employees, Minnesota Pollution Control Agency staff, and other professionals that regularly describe their projects in written form. Many past graduates have been doing this within a few years of graduation.

The text portion of the report should be approximately 10 to 15 pages (NOT counting figures, headings, tables, or other non-text information), 1.5 spacing with an 11 point Times Roman or similar font, 3/4-inch margins all around. The 10 to 15 pages is not a requirement, just an estimate of the space sufficient to provide a complete, concise report. Past students have written stellar reports that were a few pages longer, but most successful (and many unsuccessful) reports are in this range, and many students appreciate some sideboards. Please don't focus on the length, you are best served if you concentrate on the content.

Your goal is to generate a clear, readable, concise, but complete report. Pages should be numbered, there should be coherent sets of paragraphs organized under suitable headings, and the document should be free of spelling and grammatical errors. The quality of the writing counts.

This report is to be a stand-alone document, directed at an individual that does not have any familiarity with your work or the study area. Assume the individual has basic knowledge of GIS. You do not have to define terms such as metadata, buffer, digitize, or GPS, but you do have to describe the location of your study area in terms that a person unfamiliar with the setting, question, and geography of your study.

Your report should include your motivation, goals, and general approach, and lets the reader evaluate the quality of your data and analysis. Some insights into important factors and the general conclusions you can draw from your specific analyses are helpful. 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 indicate the target number of GPS position fixes per point, or the 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 buttons you pushed on the GPS receiver, or the name of each file you created.

The methods section should not be a chronological narrative. By this I mean do NOT write in a style similar to: "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." The report should focus on documenting the data development and analysis methods, as

well as a discussion of the results of the analysis. In other words, after a brief introduction, you want to describe where you are working, what data were developed, how they were developed, and how you conducted your analysis. You want to give this description of methods equal weight to the space discussing where you found you could build.

You will need graphics (maps, tables, figures) and appendices in addition to the 10 to 15 pages of text. The most important graphics and tables should be embedded in the text. Other graphics and tables should be included in an appendix. At a minimum, you need to include graphics for each main input data layer and a final data layer. By this I mean maps and/or tables for each data layer, and perhaps images. A subset of metadata should be included, and will most likely fit in an appendix.

Section headings will be needed, but there are no fixed set you must use. To communicate effectively, some topics are necessary. You need to introduce the work, identify the goals, and describe the study area. You must describe what data layers you developed, and how you developed them. You need to communicate how the accuracy of the indicated subset of data layers was determined. Perhaps the hardest part will be a succinct treatment of the analysis methods and results, followed by a discussion of the importance, significance, or reasons behind your conclusions.

Use graphics as appropriate within your document. 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.

You must include the primary results from the accuracy assessment performed for your area. The tables may go in an appendix, and the summary numbers in the metadata. The accuracy may also be discussed in the narrative of the document.

Report due dates are in the syllabus calendar.

You will be graded on both your first formal draft, your second formal draft, and your final draft. Note that you should have several “personal” drafts that you go through prior to each of the formal drafts you turn in. All parts will be graded. You should go through multiple revisions, proofing and improving it yourself. You will exchange your second draft with an instructor-selected peer, meaning each student will proof/evaluate another student's paper. You will not be graded by your peer. However, you will be graded on the quality of your recommendations for another student's work.

I will emphasize the following criteria in evaluating the report:

Was the work done well, meaning all data collected with apparent diligence, and are the analyses complete?

Is the report well-organized?

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

Is the writing clear and without error?

Does the report contain the appropriate amount of information? Neither too detailed, e.g., what you wore, or a personal narrative, nor too vague. It is helpful to ask yourself the following questions: Are your methods described such that a person could repeat your exercise? Did you think about the results critically, and comment on why you came to your specific conclusions? Did you think about how robust your conclusions were, and how different methods or approaches might change your results or conclusions? Are the graphics appropriate, informative, and attractive?

Most Frequent Errors in Writing

1) You should not omit commas when needed with subordinate clauses, independent clauses, or dependent clauses.

Example:

In order to plan our work we met as a group and divided tasks among group members.

Should be:

In order to plan our work, we met as a group and divided the tasks among group members.

2) Do not start most sentences with dependent or subordinate clauses.

Example:

To reduce errors, we used a snapping tolerance.

Should (most of the time) be:

We used a snapping tolerance to reduce errors.

3) Don't forget that data are plural.

Example:

The GPS data was collected in October.

Should be:

The GPS data were collected in October.

4) Don't use too many long sentences. When in doubt, split them into several sentences.

Example:

The rectification process required, as input, a user parameter file to control the rectification process, a digital elevation model gridded to user specified bounds, projection, zone, datum and X-Y units, a scanned digital image file of the aerial photograph, a DEM covering the same area as the scanned image, ground X-Y-Z point values (control input) and their conjugate photo coordinates in the camera coordinate system, and measurements of individual camera fiducial marks in the digitized image.

Could be:

The rectification process required many inputs. These include a parameter file to control the process, a scanned digital image, and a digital elevation model (DEM). The DEM was gridded to user specified bounds, projection, zone, datum and X-Y units. Control input (ground X-Y-Z values) and conjugate photo coordinates were also required, as were camera fiducial measurements.

5) Avoid mixing mix past, present, or future tense in a sentence. Try to avoid it in paragraphs and documents.

Example:

There were many positional errors in our data, therefore our analysis contains many errors.

Should be:

There were many positional errors in our data, therefore our analysis contained many errors.