

Biometry 726
Fall 2010
Final Project Grading Rubric

NAME _____ TOTAL _____

ITEM

1. Style and structure	0	1	2	3	4	5	6	7	8	9	10
2. Grammar	0	1	2	3	4	5	6	7	8	9	10
3. Graphics and tables	0	1	2	3	4	5	6	7	8	9	10
4. Descriptive and univariate analyses	0	1	2	3	4	5	6	7	8	9	10
5. Multivariate analyses	0	1	2	3	4	5	6	7	8	9	10
6. Abstract and introduction	0	1	2	3	4	5	6	7	8	9	10
7. Materials and methods	0	1	2	3	4	5	6	7	8	9	10
8. Results	0	1	2	3	4	5	6	7	8	9	10
9. Discussion	0	1	2	3	4	5	6	7	8	9	10
10. Supporting documentation	0	1	2	3	4	5	6	7	8	9	10

Comments: _____

1. **Style and structure:** Manuscript follows a logical flow; organization is sensible with a title page, abstract, and sections for introduction, materials and methods, results, and discussion; presentation of listed items follows a parallel construction with respect to presentation in the text and in tables and graphs - for example, if in the methods section you list the variables in Age, BMI, and HBA1c in that order, then they should be listed in tables and figures in the same order, unless you are intentionally listing them in an different order to convey some aspect of the data (e.g. in increasing order of effect size); paragraphs are focused and topically unified; avoid passive voice (e.g. “*A study was conducted examining the effects of air pollution on asthma incidence*” is better written as “*We conducted a study examining the effects of air pollution on asthma incidence,*” or “*Lyles and colleagues³ conducted a study examining the effects of air pollution on asthma incidence.*”); clear direct writing is preferred to flowery, over-stated prose; don’t make jokes or flippant comments; appropriate reporting of numerical summaries in manuscript (e.g. two significant digits is sufficient); manuscript length (8 pages total, excluding title page and bibliography) and line spacing (double-spaced, please) is followed.
2. **Grammar:** Spelling; punctuation; subject-verb agreement; no run-on sentences; appropriate use of pronouns; acronyms are used appropriately (i.e. acronyms are introduced parenthetically the first time the word is used); avoid inappropriate use of verbs for non-human subjects (e.g. “*To gather this information, a study which collects information from the time of diagnosis is needed.*” A study can not ‘collect information’. Only the humans conducting the study can do that. Rewrite the sentence as “*To address our aim, we measured data on subjects from the time of diagnosis.*”
3. **Graphics and tables:** Graphics and tables are purposefully included; graphs are constructed to convey the maximum amount of information while simultaneously being ‘true’ to the data (i.e. data are not distorted); graphics and tables are self-contained, that is, interpretable without reference to the text; appropriate captions are included; for graphs, axes are appropriately labeled, font size is large enough to render the figure visible, colors (if used) add to the interpretation of the data and are not used just because ‘they look

good that way;’ rows and columns of tables are labeled appropriately.

4. **Descriptive and univariate analyses:** Appropriate descriptive summaries of the data are included - e.g. sample size (overall and in each group, if appropriate); correct use of mean and SD, or median and IQR (or range); correct use of SE versus SD; one-at-a-time association assessments of each variable with response included and summarized appropriately; correct statistical methods used depending on the nature of the data (e.g. categorical, continuous, skewed, clustered); sample sizes are appropriately reported (N.b. missing data can change the sample size across variables).
5. **Multivariate analyses:** Goals of multivariate analysis and proposed analytic strategy is justified in the text; analytic approach is responsive to the stated aims of the study; approach is appropriate for the data structure; software and any packages used are referenced, including version numbers; assuming it is justified and suitably addresses the research question(s) of interest, it is also fine to include a multivariable analysis (one response with multiple predictors), but this should not replace the multivariate analysis (analysis of multiple measures for each subject).
6. **Abstract and introduction:** Abstract is included and succinctly summarizes the problem, the approach, and the seminal findings; abstract styles vary depending on the journal. Please write yours in the style of a Statistics in Medicine abstract. Introduction motivates the current study and ends with a thesis statement - i.e a statement of the study’s primary aim(s). Note that for a clinical or basic science paper, the introduction typically is written by the principal investigator. Since you are not all experts in the field represented by this study, a paragraph summarizing the intent of the study is sufficient. If you intend to do some additional research on your own, be sure to provide appropriate references.
7. **Materials and methods:** Methods describe the study’s experimental design; all variables are described in detail; a ‘Statistical analyses’ subsection is included in the Materials and Methods section that provides details on *all* aspects of descriptive, univariate and multivariate analyses; Note that: ‘descriptive’ statistics refers to summaries of variables’ distributions using mean and SD (or median and IQR or range) for continuous variables

and frequency and percents for categorical variables; ‘univariate statistics’ refers to assessment of one-at-a-time associations of predictors with a response; ‘multivariable statistics’ usually refers to modeling a single response variable as a function of multiple predictors; ‘multivariate statistics’ refers to any statistical method applied to the analysis of multiple measures taken on each subject; do not put results in the methods section; *analytic approach is described in sufficient detail as to be reproduced exactly if the reader had the data in hand. Ask yourself if you could perform your exact analysis if all you had were the data and the paper you are submitting. If you couldn’t, then you have not provided adequate detail*; descriptions of statistical methods are accurately described and demonstrate your mastery of that subject area.

8. **Results:** Results provide a logical and sequential summary of the findings, with appropriate reference to figures and tables; results are interpreted on the original scale of measurement wherever data transformations were implemented; appropriate reporting of p-values and confidence intervals included; results are presented in a clinical context.
9. **Discussion:** Discussion section summarizes the major findings; strengths and limitations of the study are considered; discussion contains details pertaining to future or follow-up work based on the current study.
10. **Supporting documentation:** Bibliography is included; references are correct; don’t include a reference unless you have actually read it - i.e. don’t rely on secondary references; non-peer reviewed references are discouraged; electronic appendix (i.e. .R file) is submitted accompanying the manuscript which reproduces ALL analyses, figures and tabular results presented in the manuscript; .R file is appropriately commented to make it easy to locate material.