Due Thursday April 24th 2014 by 6.00pm

Quantitative Bioinformatics - Course Project and Paper

Purpose – This project is intended to demonstrate to students the widespread use and applicability of probabilistic and statistical methods in bioinformatics practice and research. This project also permits students to observe the uses, abuses and limitations of some of the techniques discussed in class. Students are to read and critique **one** unique research article that uses probability or statistical methods in bioinformatics such as those covered in our textbook.

The Assignment – Students are to find a published journal article dealing with the broad field of bioinformatics, and which uses sophisticated probability or statistical methods. **The article that you choose can neither be "too easy" nor "too difficult", and each student is responsible for meeting with Dr. O'Brien with several articles to make sure the chosen one(s) is/are at the right level.** Note that interesting research articles can be obtained via the Web – either through Loyola's Library e-Journals or from the Archives pages of most journals themselves.

Your Paper – Your objective is to **outline, discuss and critique the probability/statistical methods used** in your article; as such, your paper should give the larger picture of the specific field of study as well as a discussion and critique of the probabilistic or statistical techniques used in the research articles you have chosen. Where applicable, connect and contrast the article to topics in our class to the degree that this is possible. All assumptions and hypotheses used in your article must be clearly stated in your analysis – even if the article makes no mention of these! Your paper might include sections titled "Introduction" or "Background", "Probability / Statistical Methods Employed", "Critique of Probability / Statistical Methods", and "Conclusion." It may help you to imagine that your audience is a classmate who has completed this course.

Important Milestones – here is the timeline for this assignment:

- By **Tuesday April 15th**: Dr. O'Brien must have approved the use of each student's article – this means that it is each student's responsibility to see Dr. O'Brien so he can look through your articles to verify that the articles meet the criteria for this project.
- By **Thursday April 24th** (last day of class): papers are due by **6.00pm** delivered to Dr. O'Brien in class – email versions not accepted.

What to turn in – Students must do their own work for this project, meet the milestones given above, and must turn in their 2-4 page typed double-spaced paper by Thursday, April 24th by 6pm. Student's grades for this Project/Paper will reflect the quality of the paper you have written including the underlying analysis and critique, as well as punctuation, writing style, transitions, communication style, etc. Students are reminded to submit their own written work providing any relevant footnotes and/or references where appropriate.

➔ **Please attach a spare copy of your article with your paper so as to facilitate grading.**