

Disciplinary Communication in Bioinformatics

1. Educational Objectives

The educational objectives for disciplinary communication in Bioinformatics are based on the interdisciplinary nature of the audiences for both written and oral presentations---we almost always face audiences that are split between those trained in biology or chemistry and those trained in computer science or statistics.

Writing

Students learn to

- 1) present biological problems and information clearly to an audience who are not trained in biology,
- 2) present programs and algorithms clearly to an audience not trained in computer science,
- 3) document programs clearly for ease of maintenance by future programmers,
- 4) use library and web resources for finding biological data and prior research to use,
- 5) use the writing conventions of bioinformatics, including data presentation, algorithm description, citation conventions, and paper organization.

Speaking/presentation

Students learn to present research results verbally, with accompanying computer projection.

Students learn to present research results in poster format.

2. How the educational objectives are met in the curriculum

The disciplinary communication requirements are spread out through several courses, with the highest concentration in two required class: CMPE 185 (Technical Writing for Computer Engineers and Scientists) and BME 205 (Bioinformatics: Models and Algorithms). The capstone course (any of several graduate classes in bioinformatics) also provides an important component.

The CMPE 185 course alone exceeds the 25-page guideline, and substantial writing is required in BME 205 and graduate capstone classes.

We expect to see at least

2 written papers involving some library research into biological questions. One of these papers (generally about 5-10 pages) is required for BME 205, the other for the graduate capstone class. Both papers also require interpretation of results from bioinformatic analysis of data, not just library research.

1 written paper describing a computer program or algorithm. This is generally met by one or more of the CMPE 185 writing assignments.

1 oral presentation (CMPE 185 and some capstone classes)

1 poster presentation (CMPE 185 and some capstone classes)

1 written paper involving own research (grad capstone class)

1 resume (CMPE 185)

1 fellowship application (BME 205)

several documented programs (BME 205)