

**Assessing Bio 4342....****Results, Spring 2005**

Please give a number for each statement, indicating whether you disagree completely (1), disagree somewhat (2), neither disagree nor agree (3), agree somewhat (4), or agree completely (5).

1. Before the course, I understood how the human genome had been sequenced. \_\_3.0\_\_
2. After the course, I understand how the human genome has been sequenced. \_4.9\_\_
3. I now have a better understanding of how genomes are organized. \_\_4.6\_\_
4. I now have a better understanding of the nature of genes. \_\_4.4\_\_
5. I now have a better understanding of human genetic disorders. \_\_3.5 (S)\_\_
6. The course helped me to improve my wet lab skills. \_\_1.9\_\_
7. The course helped me to improve my computer skills. \_\_4.4\_\_
8. We spent too much time standing around watching things at the GSC. \_1.8\_\_
9. I would like to do more hands-on sample prep myself, even if it takes a lot of class time. 2.5 (S)
10. I would like to skip the sample preparation altogether- didn't get much out of it. \_2.9 (S)\_\_\_\_
11. The staff at the GSC were very friendly and helpful. \_\_4.8\_\_
12. The demonstrations and exercise using Phred/Phrap/Consed gave me a good introduction.\_3.6\_\_
13. I would like to have more time on finishing- designing the experiments to close gaps, etc. \_2.7\_
14. We spent too much time on finishing- I could have learned the concepts without all of the hard work of actually doing it \_1.9\_\_\_\_\_
15. I don't understand why the GSC worries about how much data they get per dollar. \_1.5\_\_
16. The lectures at the GSC where pitched at about the right level. \_3.5\_\_  
too high \_2.5 (f)\_\_\_ too low \_2.5 (f)\_\_\_ too much jargon! \_\_3.7\_\_
17. Dr. Elgin often asked questions during lecture- and I'm glad someone asked. \_\_3.6\_\_

18. The CS lectures by Shaffer, Yun, Buhler, and Brent were pitched at the right level.  
 \_\_3.8\_\_  
 too high 3.3 (f)\_\_ too low 2.8 (f)\_\_; and gave the right amount of information \_\_3.3\_\_  
 too much \_3.8 (f)\_\_ too little \_3.2\_\_.
19. Working together (in the same room) on the computer labs was beneficial. \_\_4.3\_\_
20. I would have preferred working alone on the computer, with access to more office hours.  
 \_2.3\_
21. The problem sets and practice on contig95 gave me adequate preparation for the final  
 annotation problem. \_\_3.0 (S)\_\_
22. I read all of papers on which I wrote a reflection \_\_5.0\_\_ and understood them \_\_4.1\_\_.
23. I used the recommended textbook (Pevsner). \_\_1.9\_\_
24. I used the “Current Protocols in Bioinformatics” web site. \_\_1.4\_\_
25. Writing “reflections” helped me read in a thoughtful way. \_\_3.6\_\_
26. I didn’t like being responsible for our own computers- better to have a fixed computer lab.  
 1.1
27. I felt the workload was adequately balanced over the semester. \_\_3.3\_\_
28. The lectures by Elgin adequately developed the scientific goals of our research project.  
 \_4.4\_\_
29. I felt a sense of accomplishment on finishing my fosmid. \_\_4.1\_\_
30. I felt a sense of accomplishment on annotating my fosmid. \_\_3.8\_\_
31. It was obvious that no one faculty member had the expertise to teach the whole course.  
 4.6\_\_
32. The TAs were essential to my success in the course. \_4.6\_\_
33. The TAs helped us too much- I would of learned more if I had to. \_1.4\_\_
34. A check list for finishing & expectations for annotation were provided in a timely manner.  
 \_4.1
35. The number of required readings was reasonable. \_\_4.4\_\_  
 I would have preferred more background reading \_3.2 (f)\_\_ or less \_\_3.3 (f)\_\_.

36. The course schedule was reasonable (blocks of time) \_\_3.7\_\_ total time \_2.7\_\_.

37. The course met my expectations. \_\_4.1\_\_

38. Genomics is awesome! \_\_4.3\_\_ I love the power of the data bases! \_\_4.4\_\_

**Note: (S) indicates scatter in responses; (f) indicates few students responding**

### What I gained from Bio 4342....

| Goal                                                                 | No | Some.... | Yes |
|----------------------------------------------------------------------|----|----------|-----|
| Enhancement of professional or academic credentials                  |    | 3        | 8   |
| Clarification of a career path                                       | 2  | 7        | 2   |
| Developing a continuing relationship with a faculty member           | 1  | 5        | 5   |
| Learning to work independently                                       | 2  | 4        | 5   |
| Understanding of the research process in the field                   |    | 2        | 9   |
| Learning a topic in depth                                            | 1  | 1        | 9   |
| Tolerance for obstacles faced in research process                    | 2  | 3        | 6   |
| Self-confidence                                                      | 4  | 4        | 3   |
| Sense of accomplishment                                              | 1  | 4        | 6   |
| Understanding of how scientists work on real problems                | 1  | 2        | 8   |
| Laboratory techniques                                                | 3  | 5        | 3   |
| Understanding of how scientists think                                | 2  | 4        | 5   |
| Readiness for more demanding research                                | 2  | 5        | 4   |
| Opportunities for publication                                        | 3  | 6        | 2   |
| Ability to analyze data (or information)                             |    | 3        | 8   |
| Sense of contributing to a body of knowledge                         | 1  | 2        | 8   |
| Ability to solve technical or procedural problems                    | 1  | 4        | 6   |
| Learning to persevere at a task                                      | 1  | 2        | 8   |
| Skill in oral communication                                          | 1  | 8        | 2   |
| Ability to read and understand primary literature                    | 1  | 7        | 3   |
| Ability to integrate theory and practice                             |    | 7        | 4   |
| Increased interest in a genomics                                     |    | 5        | 6   |
| Opportunities for networking (e.g., contacts in career, grad school) | 4  | 3        | 4   |
| Ability to collaborate with other researchers                        | 3  | 5        | 4   |
| Understanding of science                                             |    | 5        | 6   |
| Skill in the interpretation of results                               |    | 4        | 7   |
| Understanding of the personal demands of a career in genomics        | 1  | 5        | 5   |
| Computer skills (either user or programmer)                          |    | 3        | 8   |
| Skill in the use of research instruments (other than computers)      | 5  | 4        | 2   |

| Goal                                                                    | No | Some... | Yes |
|-------------------------------------------------------------------------|----|---------|-----|
| Understanding of how current research ideas build upon previous studies |    | 3       | 8   |
| Becoming part of a learning community                                   | 1  | 3       | 7   |
| Ability to employ appropriate design methods                            | 2  | 4       | 5   |
| Development of an independent perspective                               | 1  | 5       | 5   |
| Ability to locate and identify the relevant literature                  | 6  | 4       | 1   |
| Ability to see connections to college course work                       | 1  | 5       | 5   |
| Skill in science writing                                                | 2  | 4       | 5   |
| Understanding that scientific assertions require supporting evidence    |    | 2       | 9   |
| Skill in how to do an effective poster presentation                     | 2  | 6       | 3   |
| Skill at proposing a reasonable hypothesis or thesis                    |    | 8       | 3   |
| Understanding of how knowledge is constructed in genomics               | 1  | 2       | 8   |
| Skill in leadership                                                     | 6  | 4       | 1   |
| Understanding of professional behavior in biology research              | 4  | 1       | 6   |
| Learning ethical conduct in your field                                  | 5  | 3       | 3   |
| Critical evaluation of hypotheses and methods in the literature         | 2  | 4       | 5   |
| Ability to collect data (or information) according to a reasonable plan | 1  | 3       | 7   |
| Skill in visual communication                                           | 3  | 5       | 3   |
| Learning safety techniques appropriate for genomics                     | 5  | 5       | 1   |
| Skill in how to give an effective oral presentation                     | 1  | 8       | 2   |
| Skill in discussions with student and faculty colleagues                | 1  | 4       | 6   |
| Other.....                                                              |    |         |     |

### **Selected comments:**

#### **Improving the course .....**

1. Key the papers to the lectures, having the one-page reflection due the same date; this will stimulate questions and discussion with the speaker. Keep a choice of readings.
2. Holding the course at the GSC is worth while- but mention the travel time in the course description. Could we sign up for the Biology van to provide transportation?
3. Sometimes different finishers gave different advice, which was confusing. Students working on "difficult" projects got more attention, sometimes to the detriment of others. The annotation help was more consistent.
3. Step-by-step instruction on how to pick primers and choose templates should be included in the introduction to Consed. An outline of the most efficient way to approach annotation would also be helpful.

5. Presentation on the computer science aspect of genomics was skimpy. These things are too integral to genomics to be cast aside.
4. Some means of evaluating progress after annotation of the first gene and at the mid-point of annotation would be helpful.
7. More lectures on why sequencing is important to medicine and to understanding genomes, not what kind of size/well plates the GSC should use to maximize output.
8. Use Fridays for lecture, review, etc.- 1 hr is too short to be effective work day.
5. Cookies are very important on long days!

### **Messages for WU and HHMI on maintaining the course ...**

"I loved this class because it allowed me to conduct novel research during the year, and to contribute novel information to the scientific community."

"Very helpful in understanding the inner workings of genomics. Also helpful to see a very different lab environment than the norm."

"This course gives students an in-depth and hands-on look at genomics you couldn't get anywhere else."

"Yes, its important to continue. I didn't fully understand biology until I took upper level lab courses. We need more upper level biology lab courses."

"I seriously think this should be the model for all biology courses. And note, while it's nice, you don't need millions of dollars to have a research-based mindset. And even if you did, people will usually spend money if they get a good bang for their buck, which this course certainly is."

"I gained so much confidence in using the tools available to me in genomics. I've already been able to apply the knowledge and skills I've gained in this course in independent research."