

**Summary of Formative Evaluation Form for Interns
NIH-NSF SoCal BSI Program
Cal State Los Angeles
Summer 2003**

Please type directly onto the form.
Don't worry about preserving format, spacing, or number of pages.

Name of Intern: n = 13 interns; interesting direct quotes included when relevant; totals may exceed 13 if some interns entered several responses to a question

I. Evaluate your preparedness for the project itself.

A. What are the strengths you bring to this project with respect to

1. computer knowledge?

11 of 13 programming knowledge/experience; 3 of the 11 pointed out that this knowledge made learning a new language easier ("less steep learning curve for new languages")
3 of 13 general computer skills/Microsoft applications
1 of 13 UNIX
1 of 13 MatLab
1 of 13 "not much" computer knowledge

2. math knowledge?

8 of 13 Probability/statistics knowledge
5 of 13 calculus or other college-level math
3 of 13 not required in internship project
1 of 13 lots of applied math

"math background not as strong as I would like"

3. biology knowledge?

6 of 13 basic biology knowledge
5 of 13 biochemistry/genetics/cell biology
2 of 13 know how to read research articles
1 of 13 cis-element detection
1 of 13 microarrays
2 of 13 none (1 = didactic phase of BSI allows basic understanding)

B. What are your apparent weaknesses as they apply to the project with respect to

1. computer knowledge?

6 of 13 need to learn new language
5 of 13 need more programming experience (neural networks, large projects)
2 of 13 none

2. math knowledge?

5 of 13 need more probability and statistics
5 of 13 advanced math concepts (more classes, linear algebra, proofs, multivariate math concepts)
4 of 13 none

3. biology knowledge?

5 of 13 genetics/advanced biochemistry
3 of 13 specific or advanced biology knowledge associated with projects (ex. Microarrays)
3 of 13 none
1 of 13 no formal training in biology
1 of 13 recall of biology knowledge
1 of 13 "challenge to correlate computer-related aspects of project to the biological significance"

C. With respect to weaknesses, what have you and/or your mentor done to make up for them?

10 of 13 self-teaching (ex. Using references, often supplied by mentor)
4 of 13 help from others in lab/at worksite
3 of 13 mentor tutorials/discussions
3 of 13 nothing
1 of 13 partner does all programming
1 of 13 mentor and intern crafted appropriate project for strengths/weaknesses

D. Cite the courses you took as an undergraduate/graduate student that were helpful to your internship and explain why.

COURSES –

10 of 13 programming/software engineering courses (C++, internet, QBasic, scientific, simulations, UNIX, Java)
9 of 13 molecular biology/biochemistry/genetics
4 of 13 probability and statistics
3 of 13 general biology
2 of 13 algorithms/data structures
2 of 13 general/physical chemistry
1 of 13 bioinformatics
1 of 13 computer approaches to molecular life science

WHY?

8 of 13 advanced or general biology – allows understanding of biological basis of internship project
3 of 13 programming courses – made learning a new language easier
3 of 13 probability/statistics/genetics – needed to understand microarrays
2 of 13 statistics/computer simulation/physical chemistry/algorithms – practice using mathematical methods and framing questions quantitatively
1 of 13 all courses – develop problem solving skills

- 1 of 13 programming courses – formal training in software design (“learned how to get the computer to do what I needed it to do”)
- 1 of 13 advanced or general biology – can read research articles

E. Cite the SoCal BSI lecture/workshop topics that were helpful to your internship and explain why.

LECTURES/WORKSHOPS

- 5 of 13 microarrays
- 4 of 13 programming
- 3 of 13 literature/database searches
- 2 of 13 most topics in didactic phase
- 2 of 13 sequence alignment
- 2 of 13 clustering of genes
- 2 of 13 proteins
- 1 of 13 phylogenetic analysis
- 1 of 13 all biology sections
- 1 of 13 signaling pathways
- 1 of 13 probability
- 1 of 13 “my own writing assignment”
- 1 of 13 scoring matrices

WHY?

- 3 of 13 literature/database searches – locate references/web-based resources
- 3 of 13 proteins/microarrays/phylogenetic analysis – needed for internship project
- 2 of 13 programming – good refresher
- 1 of 13 general biology/most didactic topics – provided general review
- 1 of 13 probability – cannot evaluate algorithms without understanding of probability

F. What necessary background was completely lacking or inadequate in your preparation for your internship?

- 5 of 13 nothing
- 4 of 13 statistics (“The statistics workshop should have included a discussion of practical statistical tests and how to apply them in a programming environment.”)
- 1 of 13 use of different software programs
- 1 of 13 computer programming skills/experience
- 1 of 13 programming experience in multiple languages
- 1 of 13 biology knowledge
- 1 of 13 microarray analysis

II. Comments on your work ethic

A. Your responsibilities. Have you been

1. Arriving at work on time? 11 yes/ 1 inconsistent/ 1 no pressure to keep regular hours

2. Putting in a full, wisely-spent workday? 11 yes/ 2 somewhat; “waiting for help”, “mostly learning”
3. Responding to suggestions and criticisms positively? 13 yes (ex. Has made mistakes, but eager to fix them)
4. Asking yourself to adjust to the individualities of others so that you can interact productively with all persons in the workplace? 9 yes/ 4 not an issue at worksite
5. Taking initiative? 9 yes/ 4 no

some positive statements include - “making independent decisions about programming project”, I have volunteered to help on other projects, “I ask for the next project and put my thoughts in”, having to learn things on my own so far

some negative statements include – “hard to take initiative this early”, “I just do mostly what he asks me to”

6. Using good judgment about who, when and how frequently to ask for help? 12 yes/ 1 “still haven’t gotten started”

comments - only ask for help after self-reflection and research of the problem; mentor available so easy to ask for help

7. Studying on your own time to make up for deficiencies? 13 yes; “I think each night how to solve problems for the next day”, I have spent several nights/weekends on the project so far, “I can always study more”,

B. Your mentor’s responsibilities. Has your mentor

1. made clear his/her expectations with respect to

a) the project? 11 yes/ 2 not initially; “Generally, but not a programmer so some expectations are too high/low”, “he thinks I can do magic with code”, “he thinks I don’t know basic biology”; “as much as he knows about it”, “. . .and he is adding to it very appropriately as we make more progress”, “Not at first; afterwards when he found time to talk to us, he explained the project more clearly.”

b) workplace “rules”? 11 yes/ 2 no or there are no rules; interns often observe that there are few rules

2. provided help when you needed and ask for it? 13 yes; “mentor asked postdoc to help me”

III. Please provide any additional comments you feel would be helpful at this time. Include issues you would like to see addressed by subsequent evaluations.

- “7 weeks is not enough to do anything substantial at the worksite”, learning a new language and statistical theory takes time, here to get experience and not to worry about publishing or a patent?

- "The value of any internship is only as much as what you are willing to make of it. No one is going to hand anything off to you on a silver platter or necessarily expect much from you. I am not sure that all my fellow interns necessarily "get" that."
- "I feel that I have a very strong sense of work ethics, I try my best on whatever I am working on, and to stay organized and focused."
- "Right now I'm pretty much waiting for someone to help get me started...I can't really do it myself and the guy who is supposed to help me comes in at weird hours of the day so I spend most of my time waiting and just reading".
- "I am glad to learn so much about microarray analysis."
- "For our internship..., things were not prepared and set up ahead of time. It would be much appreciated if the mentors for each site prepares or at least have some options available for the incoming intern. That way, things can get underway much more quickly."