

**Summary of Formative Evaluation Form for Interns
NIH-NSF SoCal BSI Program
Cal State Los Angeles
Summer 2005**

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

Name of Intern: n = 14 interns; interesting direct quotes included when relevant; totals may exceed 14 if some interns entered several responses to a question. **Red text** indicates new issues identified by this year's interns.

I. Evaluate your preparedness for the project itself.

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

1. computer knowledge?

10 of 14	programming knowledge/experience
3 of 14	general computer skills/Microsoft applications
2 of 14	problem-solving skills
2 of 14	MatLab
1 of 14	"not much" computer knowledge
1 of 14	knowledge of EXCEL

2. math knowledge?

8 of 14	calculus or other college-level math
5 of 14	Probability/statistics knowledge
3 of 14	not required in internship project
2 of 14	adequate for project
1 of 14	none

3. biology knowledge?

8 of 14	basic biology knowledge
7 of 14	biochemistry/genetics/cell biology
1 of 14	not much needed
1 of 14	able to research as needed

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

1. computer knowledge?

4 of 14	need to learn/ re-learn new language
3 of 14	need more programming experience (neural networks, large projects)
3 of 14	none
3 of 14	no MATLAB experience
2 of 14	database design/knowledge
1 of 14	installation of new software
1 of 14	no Mathematica experience

2. math knowledge?

7 of 14 none
5 of 14 need more probability and statistics
2 of 14 advanced math concepts (partial derivatives, differential equations)

3. biology knowledge?

6 of 14 specific or advanced biology knowledge associated with projects (ex. Microarrays)
3 of 14 none
3 of 14 recall of biology knowledge
1 of 14 **only a basic knowledge of biology**
1 of 14 no answer

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

10 of 14 self-teaching (ex. Using references, often supplied by mentor, practicing with specific programs or languages)
5 of 14 mentor tutorials/discussions
2 of 14 **help from other interns**
1 of 14 help from others in lab/at worksite

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

COURSES –

9 of 14 programming/software engineering courses
9 of 14 molecular biology/biochemistry/genetics
6 of 14 **college level math courses**
5 of 14 general biology
3 of 14 algorithms/data structures
2 of 14 probability and statistics
1 of 14 general/physical chemistry
1 of 14 bioinformatics
1 of 14 **data mining**
1 of 14 **computer graphics**

WHY?

- advanced or general biology – allows understanding of biological basis of internship project; central dogma; **allowed to learn on own**
- programming courses – made learning a new language easier; learn to program efficiently; **needed in project**
- probability/statistics/genetics/bioinformatics – needed to understand other analysis for project
- statistics/computer simulation/physical chemistry/algorithms – **used differential equations and computer simulations**
- advanced or general biology – **background to project**
- general chemistry – **background to project**
- **data mining – introduction to R language, algorithms and statistics**
- **college level math courses – project uses, allowed to learn on own, used algorithms**
- **computer graphics – user interfaces and automation**

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

LECTURES/WORKSHOPS

5 of 14	microarrays
5 of 14	probability and statistics
4 of 14	programming
1 of 14	most topics in didactic phase
1 of 14	signaling pathways
1 of 14	NCBI resources
1 of 14	none

WHY?

- proteins/microarrays/phylogenetic analysis – needed for internship project
- programming – required in project
- general biology/most didactic topics – provided general review
- probability/statistics – **MATLAB experience, had been weak spot**
- NCBI resources – **used in project**

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

4 of 14	nothing
2 of 14	computer programming skills/experience
2 of 14	programming experience in multiple languages
2 of 14	microarray analysis
2 of 14	statistics/ statistical packages
1 of 14	biology knowledge
1 of 14	databases
1 of 14	MATLAB experience
1 of 14	needed more math
1 of 14	needed more physics
1 of 14	no answer

II. Comments on your work ethic

A. Your responsibilities. Have you been

1. Arriving at work on time? 11 yes/ 3 no pressure to keep regular hours
2. Putting in a full, wisely-spent workday? 13 yes/ 1 No (mentor not available first 2 weeks)
3. Responding to suggestions and criticisms positively? 12 Yes/ 1 N/A/ 1 “mostly”
comments – “I believe so,...fun to receive guidance.”
4. Asking yourself to adjust to the individualities of others so that you can interact productively with all persons in the workplace? 13 yes/ 1 not an issue at worksite

5. Taking initiative? 13 yes/ 1 no

comments : feels uncomfortable having an opinion different from the mentor's; "given quite a bit of freedom"

6. Using good judgment about who, when and how frequently to ask for help? 14 yes

comments – wonders if asked for too much help

7. Studying on your own time to make up for deficiencies? 11Yes/ 2 no/ 1 N/A

comments - "too tired"

B. Your mentor's responsibilities. Has your mentor

1. made clear his/her expectations with respect to

a) the project? 12 yes/ 2 no

Comments – doesn't really have expectations; makes suggestions, but doesn't follow through

b) workplace "rules"? 12 yes/ 2 there are no rules

2. provided help when you needed and ask for it? 12 Yes/ 1 no/ 1 "sometimes a little late"

Comments – "quality of help is outstanding"; often grad student is assigned to help in mentor's absence; works more closely with others in lab, than the mentor

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.

- program should impress upon the mentors that interns have only a short time to accomplish their work
- not qualified for project - not a programmer, not as efficient as someone with more experience
- lectures in BSI deal with only one aspect of bioinformatics
- need better explanation of Python programming language - less information re. "tricks and shortcuts"
- descriptions of internships inadequate - should include list of required skills and the specific task the intern will accomplish
- "Everything is going good so far."
- "mentors are encouraging and easy to talk to"
- suggests a workshop on EXCEL
- would have liked a mixture of biology (wet lab) and programming in the internship
- notes that BSI workshops "skimmed over" the biology and focused on bioinformatics tools, suggests emphasizing more biology