Survey of Graduate Student Knowledge of Essential Methods and Techniques
Assessment of Student Academic Achievement/BGES Graduate Program

This evaluation is to be completed by each BGES graduate student once at entering and once upon completing the program. This survey is for our program assessment only; **your answers will be used solely for statistical purposes and will not be seen by your Major Advisor, Committee or course instructors**. For each row, **please check the appropriate boxes for both theoretical and practical knowledge**. Return this form to the departmental secretary.

Your Name: _____   *Occasion (Program Entry/Completion):* _____   *Date:* _____

Your Current Program: _____   *Primary Area of Interest (e.g., cell, molecular, ecology, etc.):*_____

Area / Specific Techniques	Theoretical Knowledge			Practical Experience		
Level Descriptions / *Techniques*	**Excellent** *Know uses and limitations, how to interpret results, discussed at length, e.g., in seminars or workshops*	**Moderate** *Know basic use, encountered in courses or reading*	**Cursory/None** *Unknown or have seen the name*	**Excellent** *Used routinely in research*	**Moderate** *Used a few times in lab courses*	**Cursory/None** *Unknown or never actually used*
1. Molecular/Cellular Biology *Area's importance to you* ❾major ❾minor ❾none						
a. Plasmid DNA purification and manipulation	❾Excellent	❾Moderate	❾Cursory	❾Excellent	❾Moderate	❾Cursory
b. RNA purification	❾Excellent	❾Moderate	❾Cursory	❾Excellent	❾Moderate	❾Cursory
c. Polymerase chain reaction (PCR)	❾Excellent	❾Moderate	❾Cursory	❾Excellent	❾Moderate	❾Cursory
d. DNA ligation and bacterial transformation	❾Excellent	❾Moderate	❾Cursory	❾Excellent	❾Moderate	❾Cursory
e. Northern and Southern Blotting	❾Excellent	❾Moderate	❾Cursory	❾Excellent	❾Moderate	❾Cursory
f. Western Blotting	❾Excellent	❾Moderate	❾Cursory	❾Excellent	❾Moderate	❾Cursory
g. Cell culture	❾Excellent	❾Moderate	❾Cursory	❾Excellent	❾Moderate	❾Cursory
h. Recombinant protein expression in bacteria/yeast	❾Excellent	❾Moderate	❾Cursory	❾Excellent	❾Moderate	❾Cursory
i. Mammalian cell transfection	❾Excellent	❾Moderate	❾Cursory	❾Excellent	❾Moderate	❾Cursory
j. Basics of general enzyme assay	❾Excellent	❾Moderate	❾Cursory	❾Excellent	❾Moderate	❾Cursory
k. Agarose and polyacrylamide gel electrophoresis	❾Excellent	❾Moderate	❾Cursory	❾Excellent	❾Moderate	❾Cursory
l. Immunostain	❾Excellent	❾Moderate	❾Cursory	❾Excellent	❾Moderate	❾Cursory

	Excellent	Moderate	Cursory	Excellent	Moderate	Cursory
m. Pull downs/IP's	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory

2. Statistics/Modeling   *Area's importance to you* ☞major ☞minor ☞none

	Excellent	Moderate	Cursory	Excellent	Moderate	Cursory
a. Means, variance, STD, confidence intervals	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
b. T-tests and other two sample tests	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
c. ANOVA and multiple two-sample comparisons	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
d. Linear regression	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
e. Chi square	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
f. Non-parametric tests: e.g., Mann-Whitney U, Wilcoxon	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
g. Experimental Design	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
h. Null hypothesis, α and β (or Type 1 and 2) errors	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory

3. Ecology/Environmental Science   *Area's importance to you* ☞major ☞minor ☞none

	Excellent	Moderate	Cursory	Excellent	Moderate	Cursory
a. GPS systems	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
b. Population census techniques, e.g., marking/recapture	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
c. Transect design, density estimates	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
d. Water chemistry analysis	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
e. Defining biological indicator species	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
f. Mathematical modeling	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory

4. Evolution/systematics   *Area's importance to you* ☞major ☞minor ☞none

	Excellent	Moderate	Cursory	Excellent	Moderate	Cursory
a. DNA and protein sequence analysis	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
b. Genetic analysis of populations	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
c. Genetic markers–allozymes	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
d. Genetic markers–RFLPs	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
e. Genetic markers–RAPDs	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
f. Genetic markers–microsatellites	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory
g. Fundamentals of nomenclature–botany or zoology	☞Excellent	☞Moderate	☞Cursory	☞Excellent	☞Moderate	☞Cursory

h. Cladistics/tree construction	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory

5. Animal behavior/Physiology *Area's importance to you* ❺major ❺minor ❺none

a. Extracellular recording (e.g., EMG, neurons, EEG)	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory
b. Intracellular recording	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory
c. Psychophysical measurement	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory
d. Metabolic rate, e.g., O2 consumption	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory
e. Models of decision making–Foraging theory	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory
f. Models of decison making–ESS (evolutionarily stable strategy)	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory
g. Kin selection–coefficients of relatedness	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory
h. Neural network modeling	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory
i. Signal analysis--Frequency domain (FFT)	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory

6. Literature research & presentations

a. Secondary databases (BIOMED, MEDLINE, etc.)	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory
b. Science Citation Index	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory
c. PowerPoint or equivalent	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory
c. Poster presentation (e.g., for scientific meetings)	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory

7. Grant writing (Doctoral students)

a. Identifying funding sources	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory
b. Writing and criticizing grant applications	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory

8. General laboratory techniques

a. Radiation Safety	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory
b. Chemical Safety	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory
c. Light microscopy	❺Excellent	❺Moderate	❺Cursory	❺Excellent	❺Moderate	❺Cursory