

For each of the following problems, use the most appropriate statistical test to answer the question. Unless instructed otherwise, follow protocol for hypothesis testing. Staple this sheet on top, followed by protocol sheet(s) and output. Label and separate the different analyses with horizontal lines on the SYSTAT output. **LATE ASSIGNMENTS WILL NOT BE ACCEPTED.**

1. In a study of sexual dimorphism in green snakes from six different geographic localities throughout the species' geographic range in the US, the snout-vent length (SVL) of 649 snakes were measured. Does mean body size (SVL, in mm) differ between males and females from Arkansas? (use USOPHEO.SYD)
2. Two species of morphologically similar ranid frogs are thought to be protected from predators by their distasteful skin secretions. Is there a difference between the two species in the "bitterness" of their respective secretions? To investigate this question, an ecologist randomly assigned each of 20 people to one of two groups of 10 each. Each person in group A tasted a Q-tip swabbed on the skin of one species and each person in group B tasted a similar swab from the other species. Each person then ranked the "bitterness" of the swab on a scale of 1 (least bitter) to 10 (most bitter). Do the two species differ in the degree of bitterness of their skin secretions? The data on rank of bitterness for each of the two species follow:

Sp 1 - 10, 8, 7, 9, 9, 10, 9, 9, 5, 8
 Sp 2 - 7, 6, 6, 8, 1, 4, 5, 5, 6, 3

3. The field metabolic rate ($\text{ml CO}_2 [\text{gh}]^{-1}$) of each of six whiptail lizards was measured using doubly-labeled water in July and again in September. Did the metabolic rate of lizards differ between July and September? Calculate the essential descriptive statistics of metabolic rate for each month and fill in Table. The data are:

Lizard #	Metabolic Rate	
	July	September
1	0.137	0.194
2	0.145	0.113
3	0.157	0.135
4	0.138	0.181
5	0.207	0.033
6	0.147	0.105

	July	Sep
Mean		
SD		