Statistics 257.001 Fall 2004

1. (*16 points*) A University of Regina statistics professor wishes to estimate the average time his students need to complete a simple task. His class has 98 students. Eight students are selected at random and timed. The observed results are shown in the accompanying table.

Time (in minutes)	
4.2	5.3
5.1	4.6
7.9	5.1
3.8	4.0

Construct an approximate 95% confidence interval for the average time of completion among all students.

2. (*16 points*) A senior administrator at the University of Regina is concerned about the university's relationship with its Wascana Park neighbours. A 1-in-500 systematic sample of the students listed in the directory is taken to estimate the total amount of money spent in local businesses during the Fall semester. The results of her sample are shown below.

Student	Amount spent
1	30
2	22
3	10
4	62
5	28
6	31
7	40
8	29
9	17
10	51

Using this data, construct an approximate 95% confidence interval for τ, the total student spending at Wascana businesses.

3. (*16 points*) A large shipment of frozen Atlantic lobster is shipped to the University of Regina's Faculty Club for an upcoming banquet to celebrate the hiring of several new faculty members. There are 100 cartons in the shipment, each containing twenty-four 5-pound packages. The lobster is accidentally thawed while in transit, and then refrozen. The total weight (in pounds) of spoiled lobster is determined by a health inspector for each of a sample of 5 cartons. The data obtained are:

$$9, 6, 3, 10, 2.$$

Construct an approximate 95% confidence interval for the total weight of spoiled lobster received by the Faculty Club.