

Group H	sampl plan	30/30
I.5a	sample size	30/30
	questions	30/40
	Total	100/100

Stratification

✓ We will use a Stratified random sample on undergraduates from Carnegie Mellon University, stratifying on graduation class and major. CMU's undergraduates have diverse backgrounds and academic lifestyles, and the diverse student body can result in a lot of variability in the demographics of our sample. Through stratification, we can make separate inferences about the pizza preferences of students from each class and department, while maintaining reasonably low sample variance by taking advantage of the similarities in students with common majors and graduation years.

For example, freshman are required to be on one of the large meal plans, but often are not interested in using their entire biweekly meal allowance at campus eateries. Certain pizzerias, such as Vocelli's, allow students to order their products using leftover DineXtra dollars from their meal plans. Most freshmen do not have much experience with the different pizzerias in the campus vicinity, so value and out of pocket expenses may have a bigger impact on the places they order most frequently from and their pizza preferences. Upperclassmen are not required to be on a meal plan, and many choose to commit a much lower amount (possibly none) to a campus plan, so they have more freedom on where to order pizza without a noticeable difference in out of pocket expenses. In this case, stratifying by class enables us to determine whether more flexible dining options and more experience with nearby pizzerias will make a significant difference in the pizza preferences of upperclassmen compared to freshmen.

Sample Size Calculation

We are planning on using a sample size of about 211.

We also did a quick estimation of the stratified margin of error, where we assumed that each strata had an equivalent proportion (in other words, $W_i = W_j$, etc.). Since our total population size is about 5280, we found that a sample size of about 4% (or about 211) would allow us to achieve a margin of error of about 6.8%.

Using $f_h = .04$, $W_h = 1/24$, and $n_h = (5280/24)f_h = 8.8$:

$$\begin{aligned}
 \text{MOE} &= 1.96 \times \sqrt{\sum W_h^2 (1 - f_h) \frac{.25}{n_h - 1}} \\
 &= 1.96 \times \sqrt{24(W_h^2 (1 - f_h) \frac{.25}{n_h - 1})} \\
 &= 1.96 \times \sqrt{24((1/24)^2 (1 - .05) \frac{.25}{7.8})} \\
 &= .068
 \end{aligned}$$

because of equal p's in each stratum the stratified ans will be about the same as unstratified here.

if there were a particular question where you expected different p's in different strata, then stratified would be winning over unstratified.

Of course, this is certainly only an estimation. The proportions are not set according to the actual class/major distributions at CMU (and naturally, for example, we couldn't have $n_h = 8.8$), but it remains a reasonable approximation. Meanwhile, the sample size is a good number, simply because it allows us to break down and poll from each of our strata.

Since we are using email with a strong incentive program, we are hoping for a 30% response rate. This would imply that we would need to reach out to about 650 students.

ok

Group H

I.5a

1. What is your age? _____
2. What is your gender?
 - a. Male
 - b. Female
3. What is your year in school?
 - a. Freshman
 - b. Sophomore
 - c. Junior
 - d. Senior
4. What is your primary school?
 - a. CIT
 - b. CFA
 - c. HSS
 - d. TSB
 - e. MCS
 - f. SCS
 - g. Heinz
 - h. Other: _____
5. What is your home state or country? _____
6. How many times per week do you eat food from a campus dining restaurant?

people eat approx
21 meals/week.
won't the # be
more like 21 for
people on meal
plan?

- a. 0
 - b. 1-2
 - c. 3-5
 - d. 6-10
 - e. 10+
7. How often do you eat pizza?
 - a. Daily
 - b. Weekly
 - c. Monthly
 - d. Annually
 - e. Never
8. What kind of pizza do you like the most?
 - a. Thin crust
 - b. Thick crust
 - c. Deep dish
 - d. Sicilian
 - e. Other: _____
9. What methods do you use to order pizza?
 - a. Internet
 - b. Telephone
 - c. Text
 - d. Walk-In Order

incl a slice bought on-campus,
or just ordered from pizzeria,
or... ?

need to clarify or reword:

what counts as a restaurant
here? only sit-down places?
take-out places? entropy?

etc.

- e. Other: _____
10. When you order pizza, what factor influences your order the most?
- a. Price
 - b. Quantity
 - c. Quality
 - d. Other: _____
11. When you order pizza, how often do you order from the same pizzeria?
- a. Always
 - b. Often
 - c. Sometimes
 - d. Occasionally
 - e. Never
12. How much does the proximity of a pizzeria affect your decision to order from it?
- a. Completely
 - b. Somewhat
 - c. Neutral
 - d. Doesn't really
 - e. None
13. How much does the price of the pizzeria affect your decision to order from it?
- a. Completely
 - b. Somewhat
 - c. Neutral
 - d. Doesn't really
 - e. None
14. How much does the occasion for eating the pizza (ie just for dinner, for a party, etc) affect your decision on what pizzeria to order from?
- a. Completely
 - b. Somewhat
 - c. Neutral
 - d. Doesn't really
 - e. None
15. What time of day do you typically order pizza?
- a. 4:00 a.m. – 10:00 a.m.
 - b. 10:00 a.m. – 2:00 p.m.
 - c. 2:00 p.m. – 6:00 p.m.
 - d. 6:00 p.m. – 11:00 p.m.
 - e. 11:00 p.m. – 4:00 a.m.
16. How much do business hours affect your decision to order from a pizzeria?
- a. Completely
 - b. Somewhat
 - c. Neutral
 - d. Doesn't really

these are good questions. it might be interesting to probe behind the answer a little bit. E.g. follow question #12 with something like "how far away or how many minutes' delivery is acceptable to you?" could add questions like this to several of these q's....

mark all that apply?

e. None

17. On what day of the week do you typically order pizza? (Mark all that apply)

- a. Monday
- b. Tuesday
- c. Wednesday
- d. Thursday
- e. Friday
- f. Saturday
- g. Sunday

18. How do you typically pay for pizza?

- a. Cash
- b. Check
- c. Credit Card
- d. Dinex
- e. PlaidCa\$h

mark all that apply,
or rank them?

19. How many of each size pizza do you typically order in one order?

- a. Small: _____
- b. Medium: _____
- c. Large: _____
- d. Extra Large: _____
- e. Extra Extra Large: _____

how will this info be relevant to
your research question?

redundant

20. If you order more than 1 pizza, do you typically order different sizes?

- a. Usually
- b. Sometimes
- c. Never

21. Which pizzeria do you feel is the best in Pittsburgh (including on campus dining)?

- a. Vocelli's
- b. Papa John's
- c. Domino's
- d. Other: _____

this is a pretty short list. no
other places you can think of
that students order pizza?

maybe I'm out of it, but I'm surprised there
are no questions about the quality of the
pizza, e.g.:

- arrives hot
- not over or underbaked
- taste (many possibilities here)
- freshness of ingredients
- generous with toppings/sauce/etc.
- not overly sloppy/dry/etc.

etc.