

Moodle Questions

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Seating and the Liberal Arts at UC-Davis

The `ucdavis1` data frame gives information on a random sample of students from the University of California at Davis. One variable, **Seat**, records where the student preferred to sit in a classroom (Front, Middle or Back), and another variable, **class**, says whether or not the student was planning to major in one of the liberal arts disciplines.

We are interested in the following Research Question:

Do liberal arts students and non-liberal arts students differ in their seating preferences, and if so, how?

To answer this question, we produce a two-way table using the following R-code:

```
classSeat <- xtabs(~class+Seat,data=ucdavis1)
classSeat
```

```
##           Seat
## class      Back Front Middle
##  LibArts      3     9     13
##  NonLib     34    32     80
```

Then we get a table of row percents:

```
rowPerc(classSeat)
```

```
##           Back Front Middle Total
## LibArts  12.00 36.00  52.00   100
## NonLib   23.29 21.92  54.79   100
```

We decide to get a table of column percents as well:

```
colPerc(classSeat)
```

```
##           Back  Front  Middle
## LibArts    8.11  21.95  13.98
## NonLib    91.89  78.05  86.02
## Total    100.00 100.00 100.00
```

Each of the following percentages occurs as either a row or column percentage in one of the percentage tables above. Match each percentage with its correct verbal description.

- 36% The percentage of all the liberal arts students who prefer to sit in the Front.
- 78.05% This is the percentage, out of all students who prefer the Front, that are non-liberal arts students.
- 23.29% Out of all non-liberal arts student,s this is the percentage who prefer the Back.
- 13.98% Of all Middle-sitters, this percentage are liberal arts students.

Seating and the Liberal Arts at UC-Davis: Describing the Relationship in the Sample

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## LibArts 12.00 36.00 52.00   100
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```

Which of the following is the best way to describe the relationship (if any) that we see in the sample between seating preference and whether or not one is a liberal arts student?

- There is almost no relationship in this sample: 52% of liberal arts students prefer the Middle, and almost the same percentage (54.79%) of non-liberal arts students prefer the middle.
- Liberal arts students are more likely to prefer the front (36% vs. only 21.92% of non-liberal arts students), and less likely to prefer the back (12% as compared to 23.29% for on-liberal arts students).
- There is a relationship between whether or not one is a liberal arts student and where one prefers to sit: a majority of both types of student preferred the Middle.
- **Seat** and **class** are related: most liberal arts students preferred the middle (52%), whereas only a few of them (12%) preferred the front).