# Stata Program Notes
# Biostatistics: A Guide to Design, Analysis, and Discovery
# Chapter 6: Study Design

## Note 6.1 – Drawing random samples

Stata can be used to draw random samples. Using the command **uniform()** to generate random numbers from a uniform distribution, a random sample with replacement of twenty observations from values ranging from 1-100 can be taken using the following commands:

```
Stata commands:

set obs 20
set seed 2
gen id = _n
gen i = round(uniform()*100)
list
```

```
Stata output:

     +---------+
     | id    i |
     |---------|
  1. |  1   85 |
  2. |  2    5 |
  3. |  3   63 |
  4. |  4   70 |
  5. |  5   52 |
     |---------|
  6. |  6   34 |
  7. |  7   17 |
  8. |  8   91 |
  9. |  9   39 |
 10. | 10   41 |
     |---------|
 11. | 11   96 |
 12. | 12   15 |
 13. | 13   65 |
 14. | 14   43 |
 15. | 15   42 |
     |---------|
 16. | 16   73 |
 17. | 17   43 |
 18. | 18   90 |
 19. | 19    9 |
 20. | 20   21 |
     +---------+
```

The Stata command **sample** can be used to draw random samples without replacement from data that is already in memory. For example, assume we have 50 observations numbered 1 to 50 and would like to draw a random sample of 10 observations without replacement.

```
Stata commands:

set obs 50
gen id = _n
set seed 2
sample 10, count
sort id
list
```

```
Stata output:

     +----+
     | id |
     |----|
  1. |  2 |
  2. |  7 |
  3. | 12 |
  4. | 19 |
  5. | 20 |
     |----|
  6. | 32 |
  7. | 36 |
  8. | 40 |
  9. | 45 |
 10. | 48 |
     +----+
```

The Stata command **bsample** can be used to draw random samples with replacement from data that is already in memory. For example, assume we have 50 observations numbered 1 to 50 and would like to draw a random sample of 10 observations with replacement.

```
Stata commands:

set obs 50
gen id = _n
set seed 2
bsample 10
sort id
list
```

```
Stata output:

     +----+
     | id |
     |----|
  1. |  3 |
  2. |  5 |
  3. |  5 |
  4. |  7 |
  5. | 10 |
     |----|
  6. | 13 |
  7. | 13 |
  8. | 15 |
  9. | 15 |
 10. | 24 |
     +----+
```