| Announcements HW2 Due 9/30/2   | 3   |                           |
|--|---|---------------------------|
| 11 Wa DOE 1/39   |   |                           |
| Review:  |   |                           |
| The shall to tes   | + HO: 12m = 124   | vs ≠                      |
| ANOVA /HO: M+  | $= M_{\text{B}} = M_{\text{W}}$ $= \mu_{\text{B}} = M_{\text{W}}$ | <del></del>               |
| > HO: Ma   | = 48 = 4  | @ leust I F               |
| (HD: NO  | Interaction effect  | 15 Interaction            |
| 1 0 A  |   | changes depending on obse |
| F W B A  | Y(F,w)i = M(F,w   | V                         |
| 11 (9)   |   |                           |
| M  | overall mean  | + + M + ME, W             |
|  |   |                           |
| Assumptions  | 5   |                           |
| 1.) (Y) continu  | vous numeric 2.) Norm I   | Dist por combo            |
| 3.) Egyad Va   | r 4) Indep  | Samples                   |
| La id  | F Not, Welch's ANOVA  | F-Statistic Som           |
| and the commence of the contract of the contra |   | SSmodel                   |
|  |   |                           |
| Actual Test  |   | 7 - 55 ecros              |
| Actual Test<br>7) Main   | vs Interaction  | if F20, Phigh No          |
| Actual Test  7) Main  2) R <sup>2</sup>  | u/n/  | if FRO, PHigh No          |
| Actual Test  7) Main  2) R <sup>2</sup>  | u/n/  | if FRO, PHigh No          |
| Actual Test  7) Main  2) R <sup>2</sup>  |   | if FRO, PHigh No          |

Dan Schomacher

| helde Flu<br>+ Covid Booste  | John = Blace Avg BM = 44 John's Rosidual             | Male, 50,000 \$ 1,000 \$ |  |
|--|--|---|--|
| and the second   |  | of observation<br>heir group mean   |  |
|  | Model Diagnostics                                    |   |  |
|  | Looks @ residuals                                    |   | 1-Way ANOVA  |
|  | Use to check Assumptions                             |   | 2 way Balanced   |
|  | Normality check                                      | Equal Variance chec   | K I \  |
|  |  | Levene's Test   |  |
| and the second section of the section of th |  | Ho: Egual V   | lar othawise   |
|  |  | Halt: Not 1   |  |
|  |  | Par (m frow = C(2,6   |  |
| the transfer and the configuration of the second se |  | Plot(aov.data,  | 1  |
|  |  | •   | which of 2 plots want  |
|  |  |   | (Magazina)   |
| nama alan daga da kara sa sa kara kara sa kara   | POST HOC TEST  |   |  |
|  | We know 1 group has dif m                            | ean. Which one? is it up or   | down?  |
|  | Only when reject HD ANOVA                            | HO: >MB = M<br>HO: >MB = Mu<br>Mw = Ma  | A Halt:  |
|  | Pair wise test                                       | HO: > MB = nu   | 1 \ Mx \ Hy  |
|  | → Test all @ once                                    | ( Mw = Ma   |  |
|  |  |   | CA The well I  |
| the state of the s | Example with more categor                            | ries, more likely to rej to, } Scho   | offe · lurkey's Method   |
|  | Example with more early state of size need to adjust | b ac  | list a and p-val   |
|  |  |   |  |
|  | in R: Scheffe Test (ao                               | (results) or Turkey HSD (e  | iov.data)  |
|  | Results look like 10                                 |   |  |
|  | 17 Tm. Sm + (a.)                                     | 2/ it < .05, Signiticant  | Ma>M,>,5   |
|  | 2, Sm = 15.5   | _ 1 6   |  |
|  | $\frac{ 2^{-1}n+6.36}{6.36}$                         |   |  |
|  | Don't montion on                                     | e that isn't significance   |  |
|  | - Summary  |   | од гоской учениция и и учениция ференция почену провожения выбольно высование на почения на повы обствення на почения на поче |

|  | 11/ ANMIA :2 ( ) interaction   |
|--|--|
| 14   | o Way ANOVA Balanced interaction  Toothleagth N Dose + Treatment + Close + Treatment  M = Mo + Mose + Millentment + Merror   |
|  | Toothleagth to Dose + meaninest of   |
| and the second section of the second   | M = Mo + Maose + 1º + lentment 1 2001  |
|  | SSTOTAL = (SSmodel) + SSerror  |
| Company of the State of the Sta | and the second of the second o |
| And an administration of the state of the st | SSdose + SStreament + SS interaction   |
|  | SSdose + SStreatment + SS interaction ]  (A)* Toothleypth 10 Dose + Sup + Doses up   |
|  | In RP: as Northersth ~ Dose * Suppliment, data =.  |
| Datasia and San Print David Se   | [in K]- asy loothength or Dose Sufficiently  |
| non-mineral factor of the first state of the second  |  |
| and the second s | Dose effect  |
| y diamental and a second   | F80 No dose c Alect  |
| أخفيت سيبين أوزيت بيدري  |  |
|  | Usually don't interpretent interaction effect in Post Hoc  |
| alian at a series and a series a   | Visited Contraction of the Contr |
| 17.  | balanced ANOVA #   |
| <u>V.</u>  | if table (data\$co(1)) table(data\$co(2))  |
| nament dament america y productivi beret   | it Sumple sizes aren't egval   |
|  |  |
|  | Types sum of Squares   |
| America Assessment and America Assessment and America Assessment and America Assessment and America Assessment   | Types sum of Squares  SS(c)=SS(C AB) if unbalanced  SS(c) ≠ SS(C AB) if balanced   |
|  | SS(c) + SS(c) AB) -f balanced  |

|               | Unbalanced  55 model = SS(A) + SS(B) + SS(C)  = SS(A) + SS(B) + SS(C)  = SS(A) + SS(B) + SS(C) |
|---------------|--|
|               | (55 B (55e) 55(b) +55(A1B) 55(c   AB)  |
|               | Type 1 (segential SS) Type 3 (conditional ss) [in R3]  |
| 1             | YNABAC  A SS(A)  A SS(A) BC)  A SS(A) BC   |
|               | B 55(B AC) C 55(C AB) C 55(C AB)   |
|               | YNC+A+B += < S5 midel  |
|               | ( ss(c) Pros: don't have to order ( Cons: doesn't use all information)                         |
|               | + = SS model Good to use both  |
| ann an bandan | if 2-Way AWOVA, Type 1 order only has small effect.  |
|               |  |
|               | grade SS(grade)<br>Origin SS(origin I grade)   |
|               |  |