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Section 1

MANE 6313

Subsection 1

Week 5, Module E

Student Learning Outcome

Analyze simple comparative experiments and experiments with a single factor.

Module Learning Outcome

Explain miscellanous topics associated with designs with blocking variables.

Greek Letters

Lowercase

α	\alpha	θ	\theta	o	o	τ	\tau
β	\beta	ϑ	\vartheta	π	\pi	υ	\upsilon
γ	\gamma	ι	\iota	ϖ	\varpi	ϕ	\phi
δ	\delta	κ	\kappa	ρ	\rho	φ	\varphi
ϵ	\epsilon	λ	\lambda	ϱ	\varrho	χ	\chi
ε	\varepsilon	μ	\mu	σ	\sigma	ψ	\psi
ζ	\zeta	ν	\nu	ς	\varsigma	ω	\omega
η	\eta	ξ	\xi				

Uppercase

Γ	\Gamma	Λ	\Lambda	Σ	\Sigma	Ψ	\Psi
Δ	\Delta	Ξ	\Xi	Υ	\Upsilon	Ω	\Omega
Θ	\Theta	Π	\Pi	Φ	\Phi		

Table 3.3: Greek Letters.

Taken from Lamport (1994). LaTeX: A Document Preparation System, 2nd edition. Addison-Wesley

Blocking Designs Improve Sensitivity of Tests

■ TABLE 4.4   *Correct*
Analysis of Variance for the Vascular Graft Experiment

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F_0	P-Value
Treatments (extrusion pressure)	178.17	3	59.39	8.11	0.0019
Blocks (batches)	192.25	5	38.45		
Error	109.89	15	7.33		
Total	480.31	23			

unchg   *Grouped*   *unchanged*

■ TABLE 4.5
Incorrect Analysis of the Vascular Graft Experiment as a Completely Randomized Design

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F_0	P-Value
Extrusion pressure	178.17	3	59.39	3.95	0.0235
Error	302.14	20	15.11		
Total	480.31	23			

Balanced Incomplete Block Design

- We will not cover in this class

- Occurs when the block size is less than the treatment size

- Is balanced in that any pair of treatments occur together the same number times as any other pair of observations.

Importance of ANOVA

- What analysis technique was used for the RBCD, Latin Squares and Graeco-Latin Squares design?

- Must master this technique (if you have not)

Model Adequacy Checking

- Very important topic
- Should be performed for every model
- Residual analysis is the same as the one-way ANOVA (Minitab Demo)