

*The Effects of Enrollment in
Developmental Mathematics
Upon Student Achievement in
College Geometry*

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Outline

- Introduction
- Research Question
- Methodology
- Results
- Future Research
- Questions



Introduction

- MATH 1306 was created to fill the mathematics core need for students in select majors
- MATH 0318 is designed to prepare students who are unable to enter directly into MATH 1306.
- MATH 0318 is a unique blend of Geometry, Probability & Statistics, and Algebra



Research Question

Is there a difference in student achievement in MATH 1306 between students who were required to first enroll in a developmental mathematics course and those students who directly placed into MATH 1306 at the University of the Incarnate Word (UIW)?



Methodology

- Ex-post facto design based upon 113 students who successfully completed MATH 1306 between 2006 and 2008
- Identical MATH 1306 course content
- Final course averages stored & recorded
- Data analyzed in Minitab 14
 - Anderson-Darling Normality Test
 - Kruskal-Wallis Rank Test to compare group medians (four extreme outliers removed)



Kruskal-Wallis Rank Test

$$H = \left[\frac{12}{n(n+1)} \sum_{j=1}^c \frac{T_j^2}{n_j} \right] - 3(n+1)$$

n is the total number of observations over the combined samples.

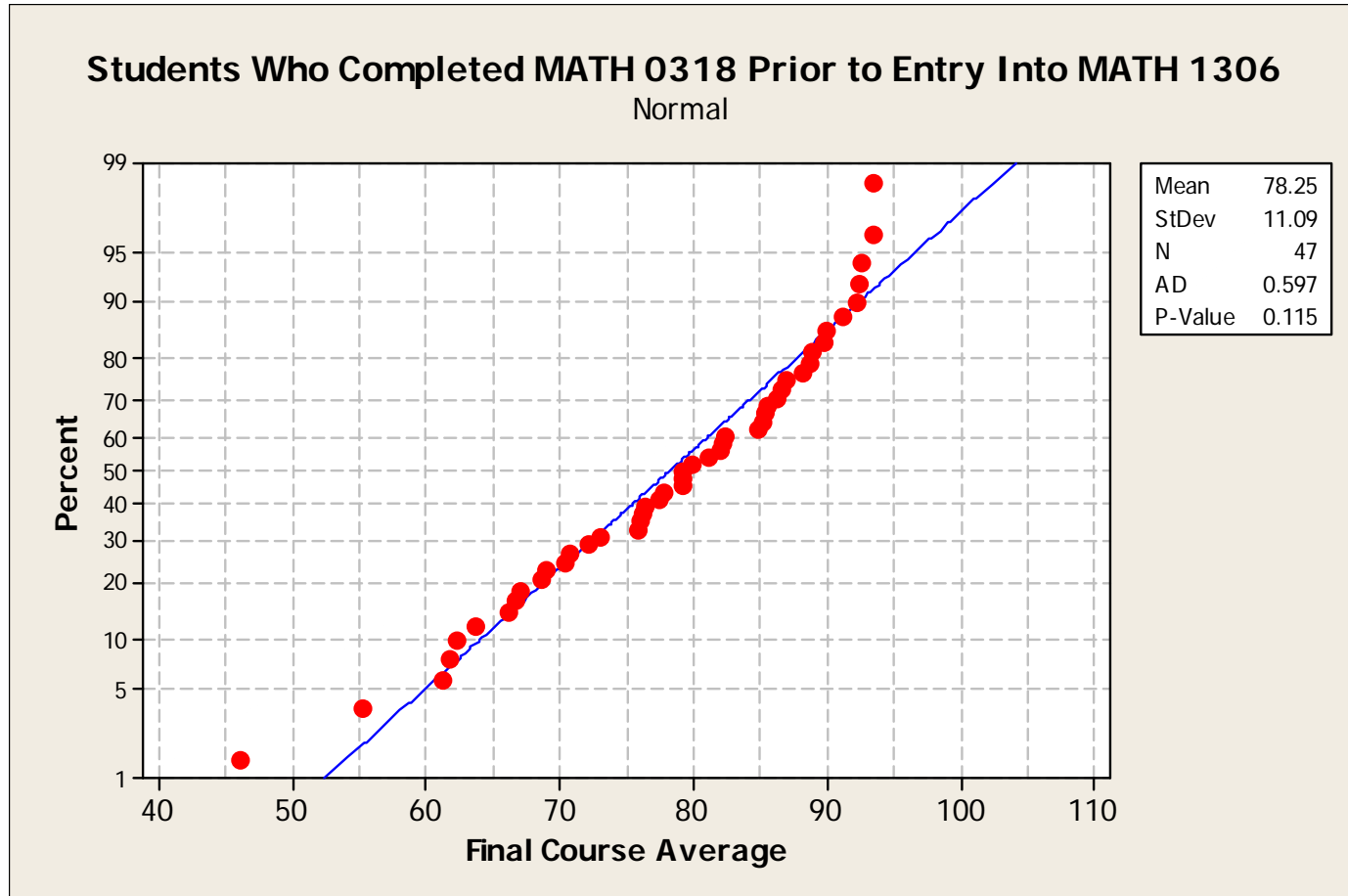
n_j is the number of observations in the j th sample.

T_j is the sum of the ranks assigned to the j th sample.

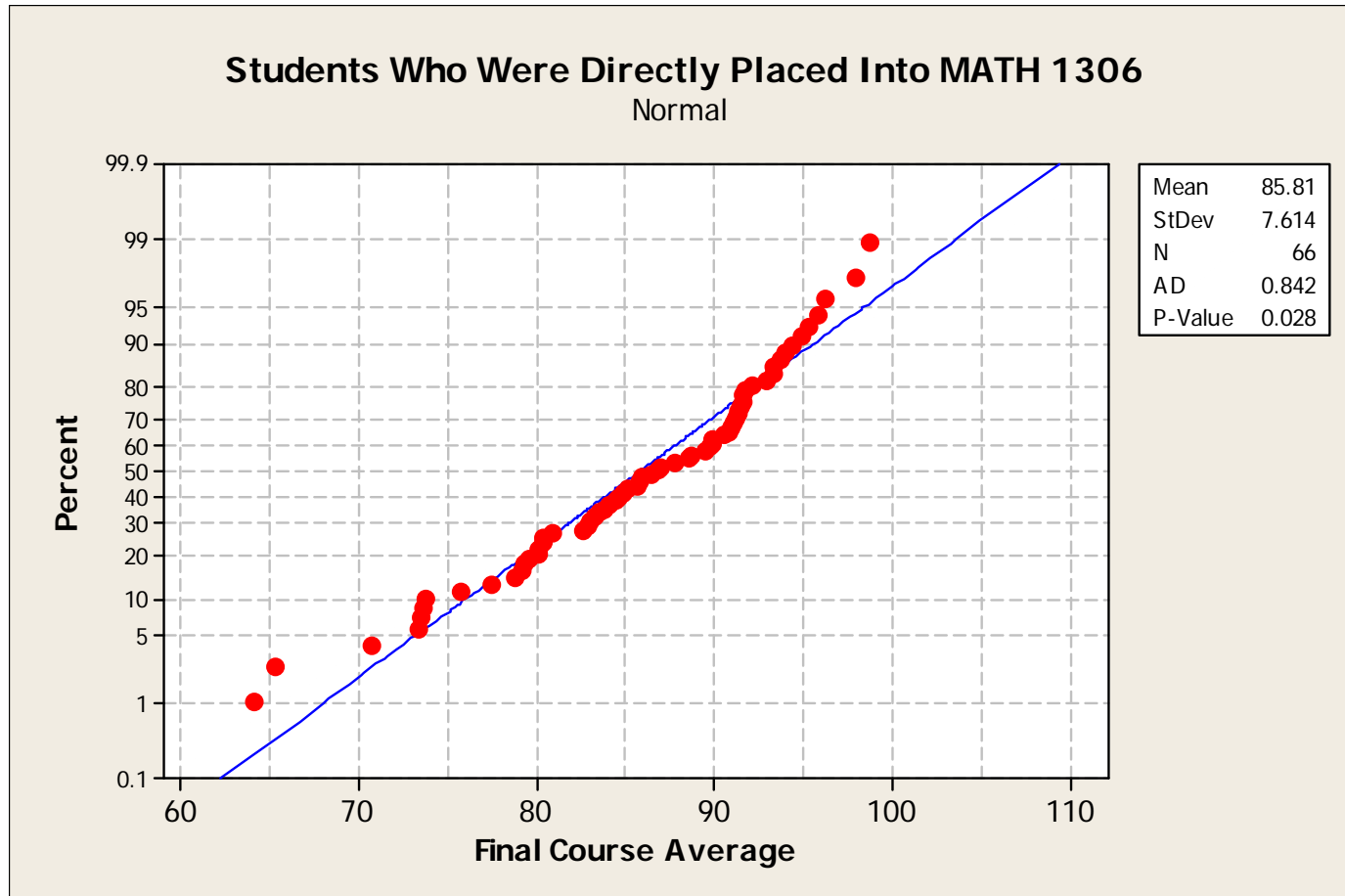
T_j^2 is the square of the sum of the ranks assigned to the j th sample.



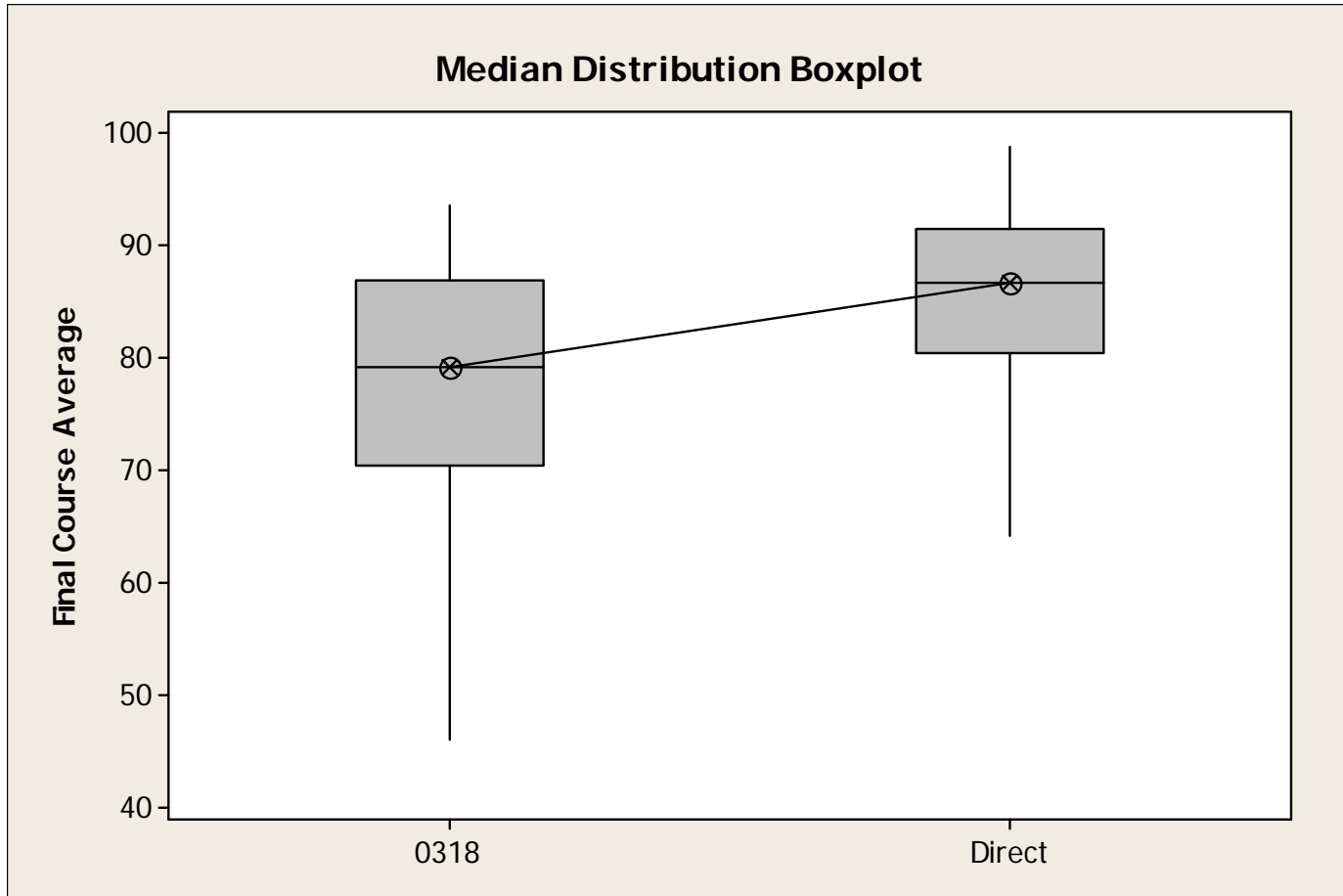
Results



Results



Results



Findings and Conclusions

- The analysis enables us to conclude the following facts:
 - The final course average for those students who completed MATH 0318 are statistically equivalent ($p > 0.05$) to the final course average earned by those students directly placed into MATH 1306 at UIW.
 - Successful completion of MATH 0318 has an equalizing effect upon those students not prepared to enroll directly into MATH 1306.



Future Research

- Phase I – complete
- Phase II – in-progress
 - Increase sample sizes
 - Transition to parametric testing methods
- Phase III – fall 2010 and spring 2011
 - Include results from English



Summary

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Questions

