

# Analysis of Admission ACT Scores from 2005-2011

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FINAL ASSIGNMENT

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DATA MINING 3210: | JOHN ALESHUNAS

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December 16, 2013

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## Analysis of Admission ACT Scores from 2005-2011

### **Executive Summary:**

To profile universities admission ACT scores and develop inferences on their admission policy, I will use Excel to graph and analyze the distribution of ACT-tested freshmen using [ACTscores.xls] dataset. Excel is spreadsheet program. This program use numerical values and data in the rows and (or) columns of a spreadsheet. The dataset that I am using consist of seven different average ACT scores: 36, 32, 27, 23, 18, 16, and 0. In the dataset there are 5 public universities: Harris-Stowe, Lincoln, Missouri Western, Truman, and UMSL. There are also 5 private universities within the dataset: Lindenwood, Fontbonne, Maryville, Southwest Baptist, and Webster. The percentile of each university distribution ACT score is listed from 2005-2011 in the dataset. Excel will use these numerical entries to create a graph of the universities for each year. It will take the dataset to use its numerical values and data to categorize the dataset, and display the information is graphs. While using excel, by converting the data in the dataset into visual displays. This will assist me in developing inferences on private and public universities admission policy. I will view the percentile over the years, to see if I recognize any patterns, outliers, profile ACT distribution, and compare admission programs. I will combine the private and public universities distribution ACT scores for each year, and this will infer behavioral decision that resulted in the distribution of each university. Last, I will take all of Webster's distributions of ACT-tested freshmen from 2005-2011 to see if their admission policy remained the same or have any patterns.

### **Problem Description:**

The ACTscore.xls dataset will be processed through Excel. The data will determine: any patterns, outliers, profile ACT distribution, and comparable admission programs.

### **Analysis Technique:**

*Description of the conceptual framework of the methodology:*

I retrieved a statistical summary of ACT-tested first time undergraduates enrolled in Baccalaureate and Higher Degree granting institutions by enhanced raw score intervals from the Missouri Department of Higher Education website; which is appropriate for my experiment. The dataset is appropriate for my experiment, because it provides all the essential number and percentages I need to conduct the experiment. The dataset contains raw score intervals from private and public universities and colleges of fall: 2005, 2006, 2007, 2008, 2009, 2010, and 2011. The conceptual framework would be to perform an analysis of the admission ACT scores. I will evaluate the five private and five public universities/colleges raw score intervals listed: Harris-Stowe, Lincoln, Missouri Western, Truman, UMSL, Lindenwood, Fontbonne, Maryville,

Southwest Baptist, and Webster. I will use the dataset to observe each university/college ACT frequency, see if the distribution change from year to year, see if ACT score increase over time, see if there are any other trends that change over the years, look for any patterns, and examine any outliers. Next, I will compare and contrast public universities/colleges versus private universities/colleges. Then I will take this given information and compare ACT frequency school to school over the years, acknowledge similar profiles and trends, and compare admissions program.

*A description (and possible illustration or diagram) of the structure or topology of the algorithm:*

I will use the program excel to design a line chart using the dataset for each university/college. Each chart will contain the years, and ACT ranges from 2005-2011 of the university/college.

*A description of how the algorithm presents its results:*

The results will be presents by line graphs.

*A description of your hypothesized results- what do you expect to see as the results of your experiment:*

As the results of my experiment, I expect to see:

- Comparable trends amongst universities/colleges
- Patterns in ACT scores distributions
- Similar admissions programs
- Comparable ACT frequency
- ACT scores will increase over time
- ACT scores distributions will from year to year
- Low and high score density

*A description of your experiment plan:*

The dataset of each university/college will be analyzed and configured into a line. Then each chart and dataset will be compared.

The problem was approached by performing the following:

First, I downloaded dataset 2005 ACTscores.xls, 2006 ACTscores.xls, 2007 ACTscores.xls, 2008 ACT scores.xls, 2009 ACTscores.xls, 2010 ACTscores.xls, and 2011 ACTscores.xls to my personal computer. Next, I created a new folder on my desktop, and I saved all the files I downloaded in the new folder. Then, I opened the 2005 ACTscores.xls spreadsheet copied and pasted the seven average ACT scores from sheet one into sheet two. I copied and pasted Harris-Stowe, Lincoln, Missouri Western, Truman, UMSL, Lindenwood, Fontbonne, Maryville, South Baptist, and Webster distribution of ACT-tested freshmen percentiles from sheet one to sheet two. Subsequently, I copied pasted the university's names from sheet one to sheet two. I highlighted all the data in sheet two, and clicked insert line graph. The graph was saved to refer back to for future reference.

I repeated the following steps above for each dataset, to make sure I had a graph for each year. This is an illustration of the universities actual ACT admission requirements I created, to give me a better understand of the results, and the distributions.

<i>University</i>	<i>Freshmen Admission ACT Score</i>	<i>Public or Private</i>
Harris-Stowe	18	Public
Lincoln	Open-enrollment institution for Missouri residents, applicants who are Missouri residents and have earned a high school diploma or GED diploma are eligible for admission to Lincoln University.	Public
Missouri Western	21	Public
Truman	24	Public
UMSL	17	Public
Lindenwood	20	Private
Fontbonne	20	Private
Maryville	20	Private
Southwest Baptist	20	Private
Webster	21	Private

**Assumptions:**

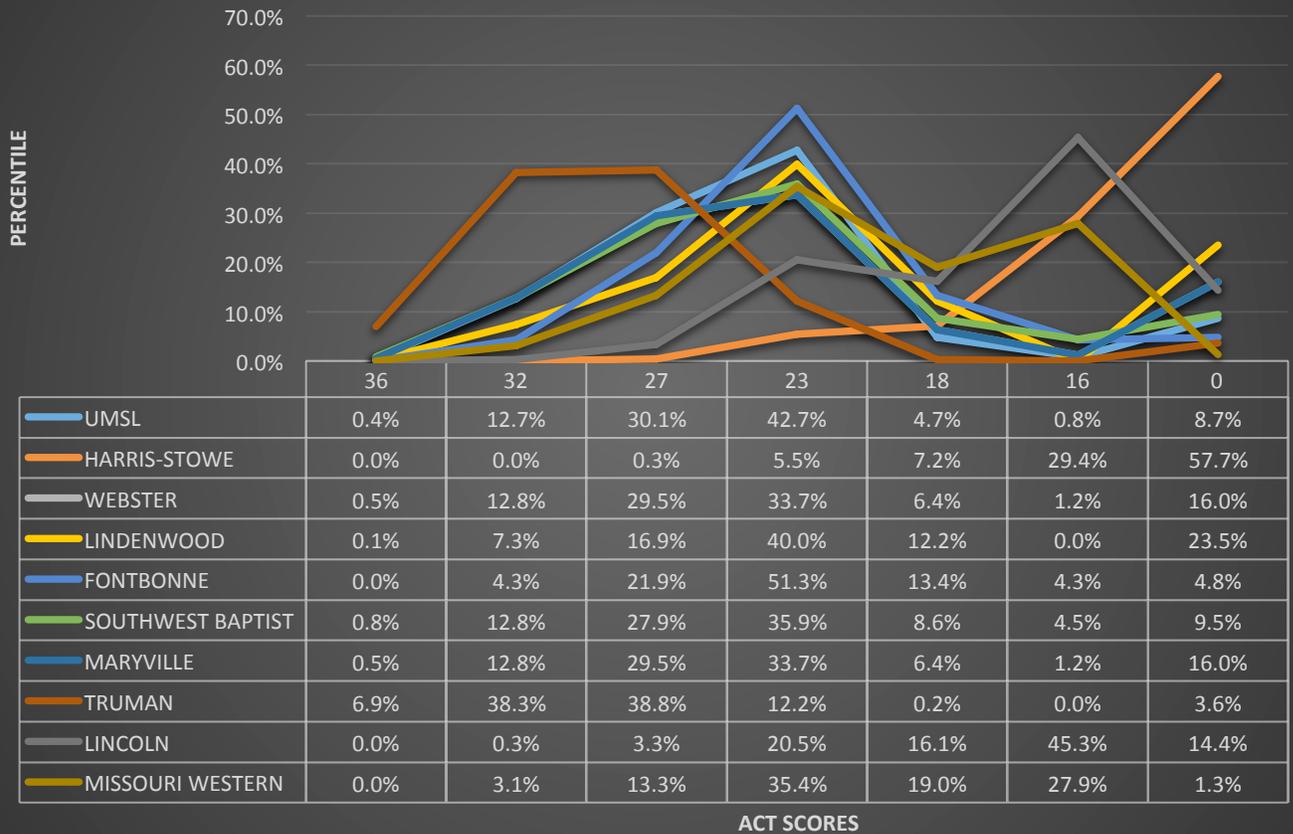
The assumptions governing this research is that:

- Private universities/colleges have similar admission profiles
- Public universities/colleges have similar admission profiles
- Score density increase from year to year
- Similar ACT score frequency
- Similar ACT score distribution

**Results:**

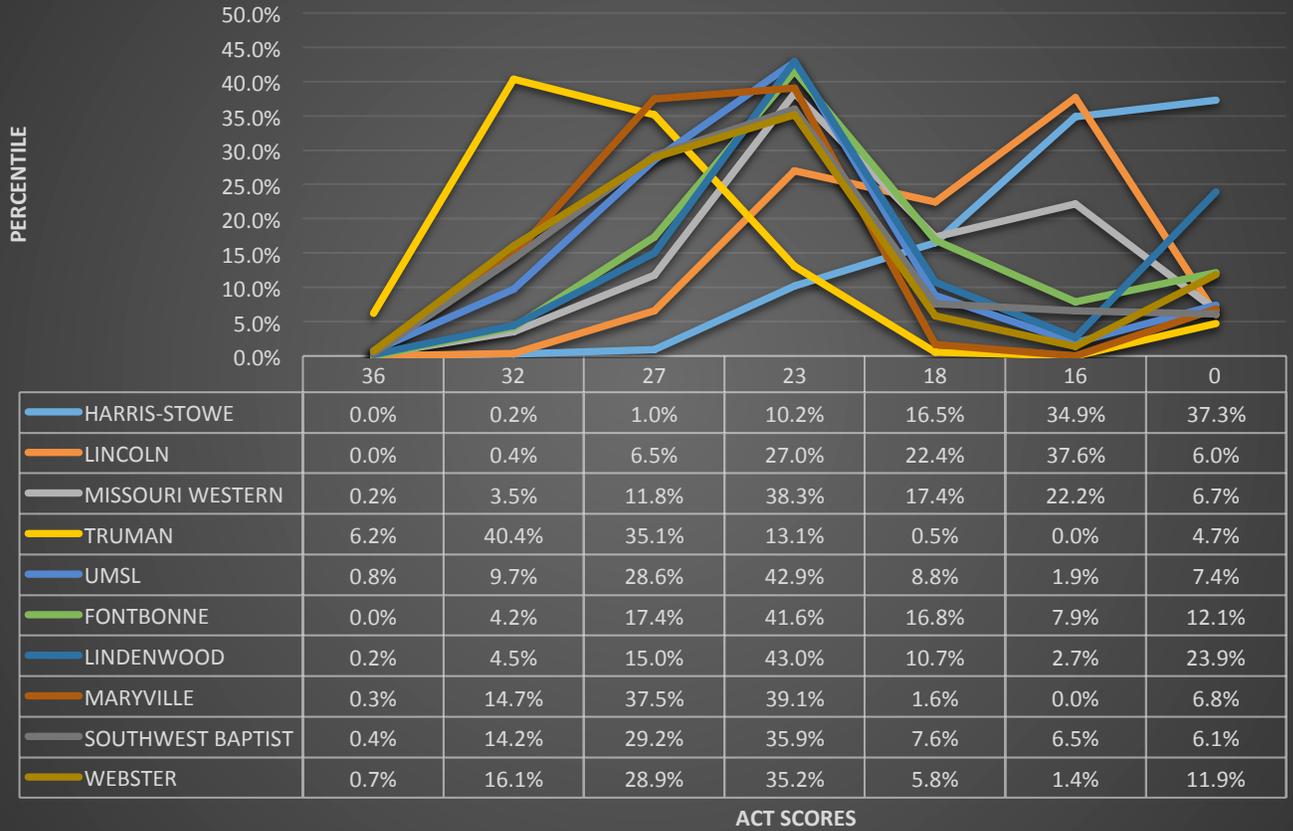
The results are presented below:

## 2005 DISTRIBUTION OF ACT-TESTED FRESHMEN



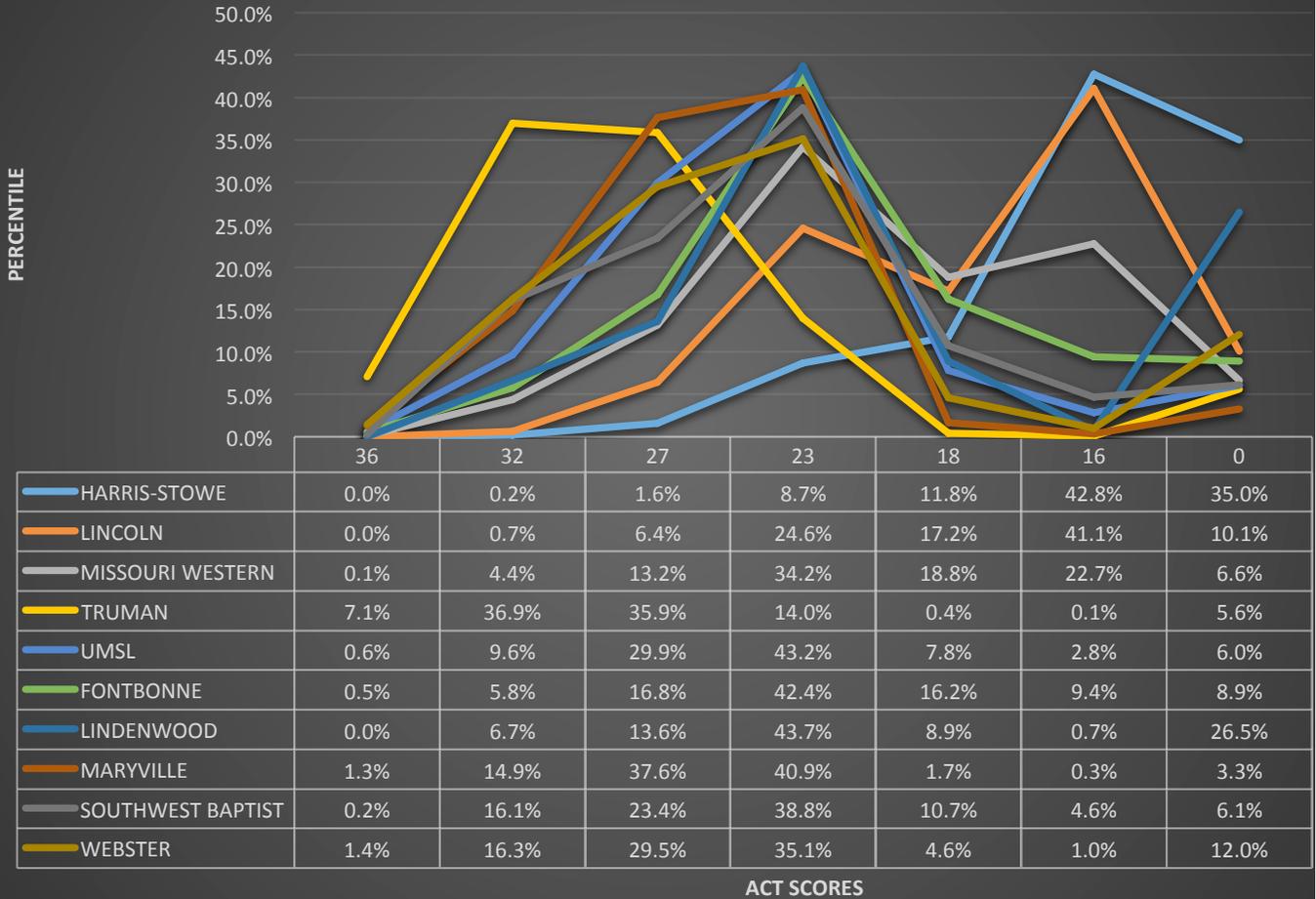
This chart illustrates 2005 distribution of ACT-tested freshmen for the following private and public universities: Lindenwood, Fontbonne, Maryville, Southwest Baptist, Webster, Harris-Stowe, Lincoln, Missouri Western, Truman, and UMSL.

## 2006 DISTRIBUTION OF ACT-TESTED FRESHMEN



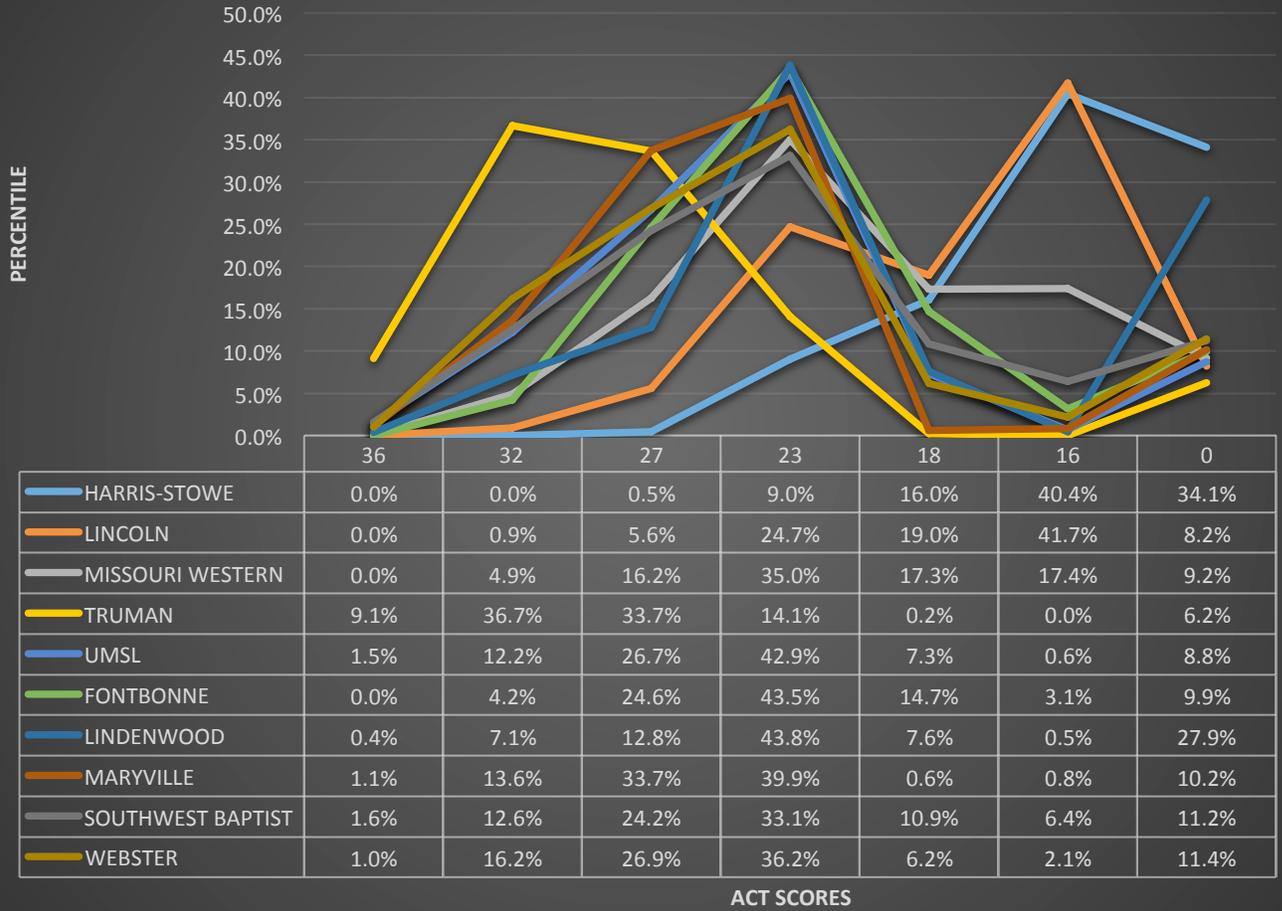
This chart illustrates 2006 distribution of ACT-tested freshmen for the following private and public universities: Lindenwood, Fontbonne, Maryville, Southwest Baptist, Webster, Harris-Stowe, Lincoln, Missouri Western, Truman, and UMSL.

## 2007 DISTRIBUTION OF ACT-TEST FRESHMEN



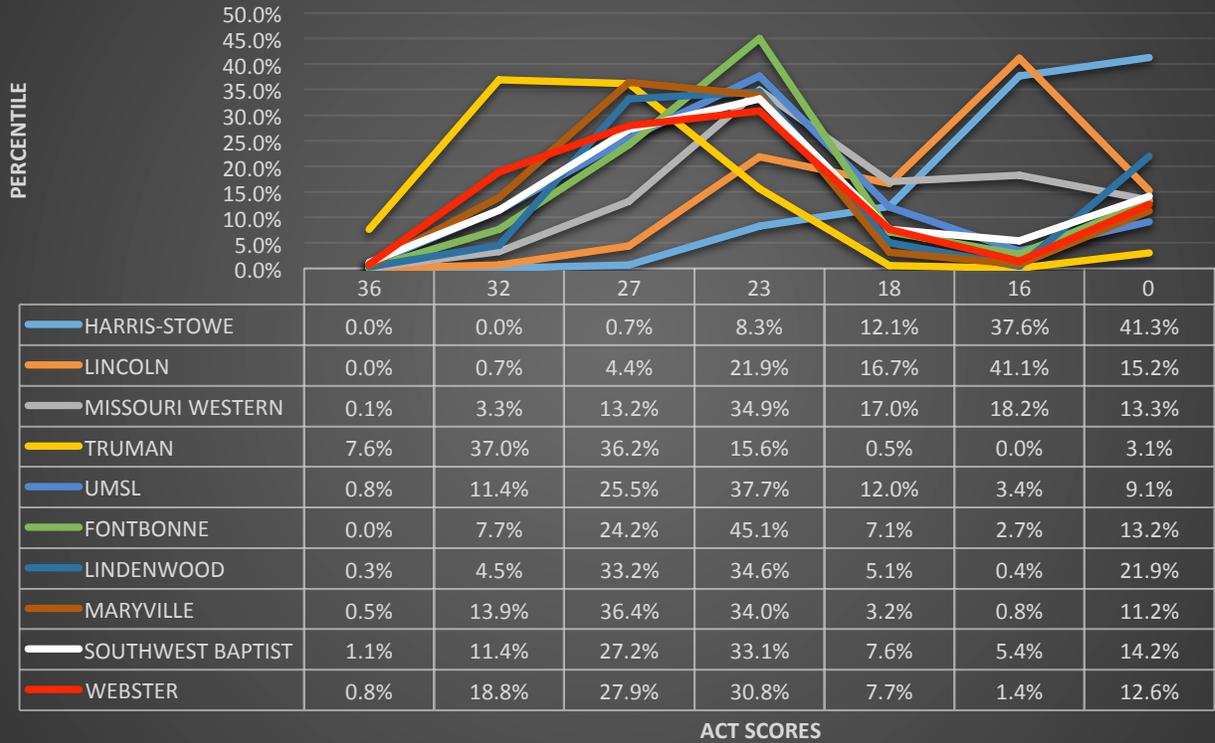
This chart illustrates 2007 distribution of ACT-tested freshmen for the following private and public universities: Lindenwood, Fontbonne, Maryville, Southwest Baptist, Webster, Harris-Stowe, Lincoln, Missouri Western, Truman, and UMSL.

## 2008 DISTRIBUTION OF ACT-TESTED FRESHMEN



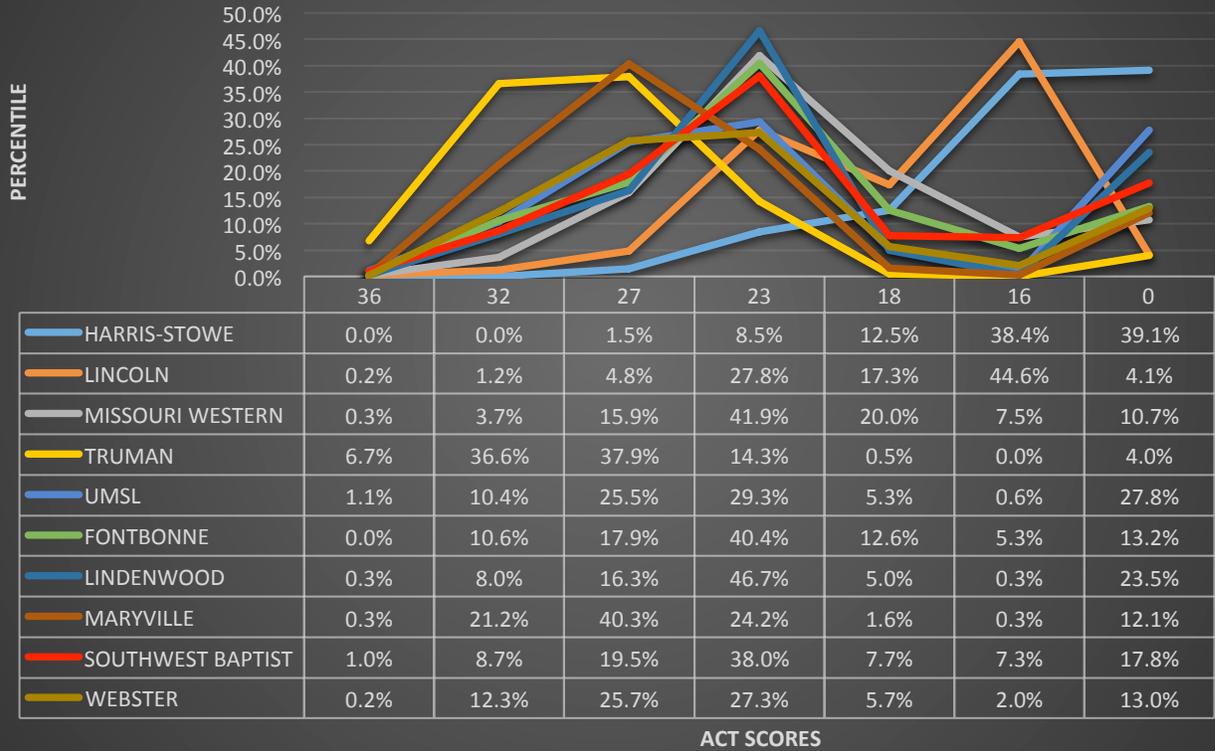
This chart illustrates 2008 distribution of ACT-tested freshmen for the following private and public universities: Lindenwood, Fontbonne, Maryville, Southwest Baptist, Webster, Harris-Stowe, Lincoln, Missouri Western, Truman, and UMSL.

## 2009 DISTRIBUTION ACT-TESTED FRESHMEN



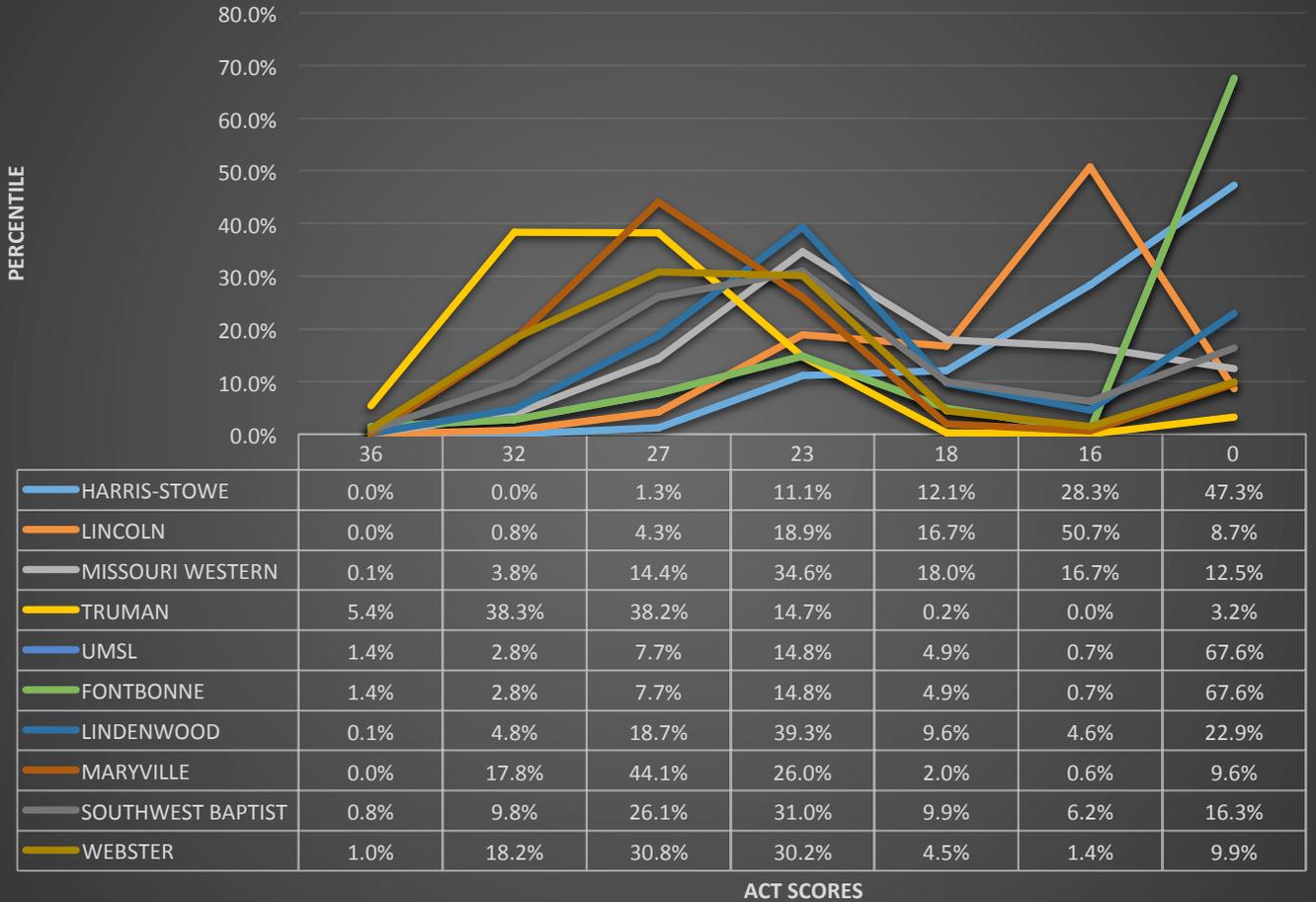
This chart illustrates 2009 distribution of ACT-tested freshmen for the following private and public universities: Lindenwood, Fontbonne, Maryville, Southwest Baptist, Webster, Harris-Stowe, Lincoln, Missouri Western, Truman, and UMSL.

## 2010 DISTRIBUTION OF ACT-TESTED FRESHMEN



This chart illustrates 2010 distribution of ACT-tested freshmen for the following private and public universities: Lindenwood, Fontbonne, Maryville, Southwest Baptist, Webster, Harris-Stowe, Lincoln, Missouri Western, Truman, and UMSL.

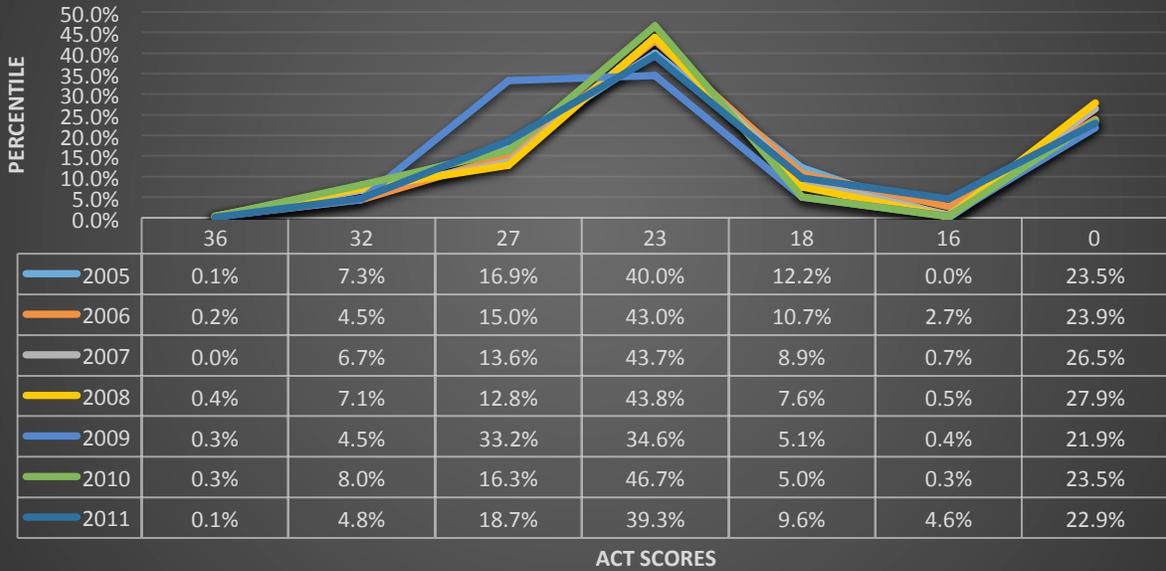
## 2011 DISTRIBUTION OF ACT-TESTED FRESHMEN



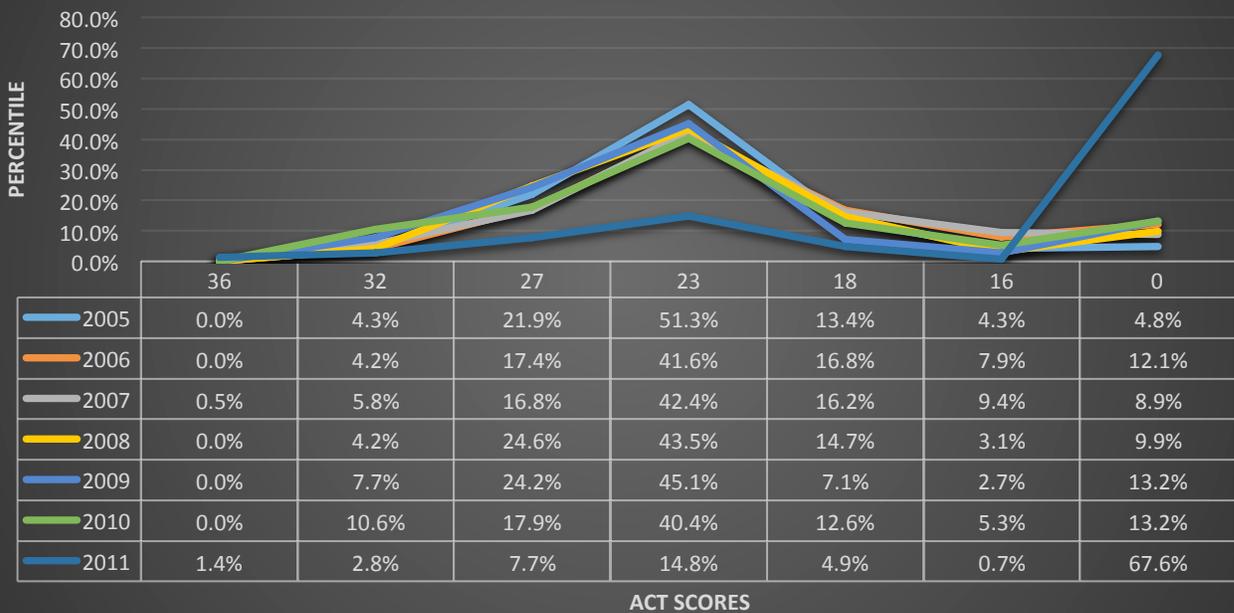
This chart illustrates 2011 distribution of ACT-tested freshmen for the following private and public universities: Lindenwood, Fontbonne, Maryville, Southwest Baptist, Webster, Harris-Stowe, Lincoln, Missouri Western, Truman, and UMSL.

The following present a summary of each university for year 2005, 2006, 2007, 2008, 2009, 2010, and 2011.

## Lindenwood's Distribution of ACT-Tested Freshmen



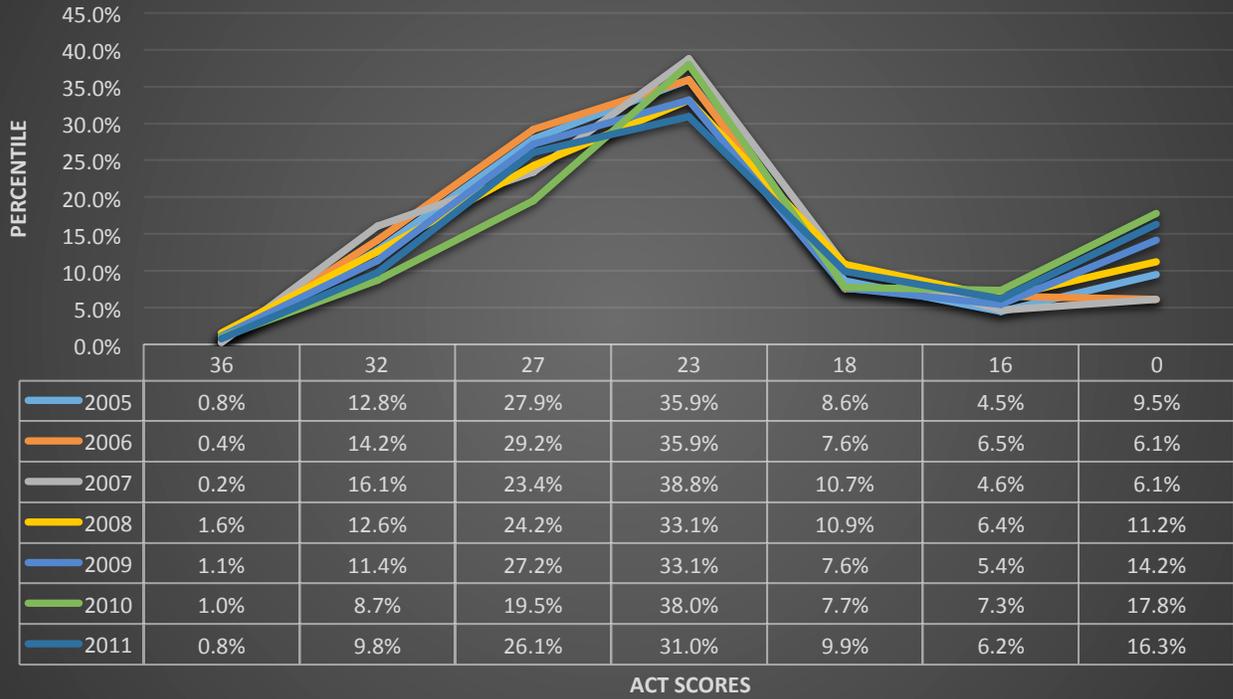
## Fontbonne's Distribution of ACT-Tested Freshmen



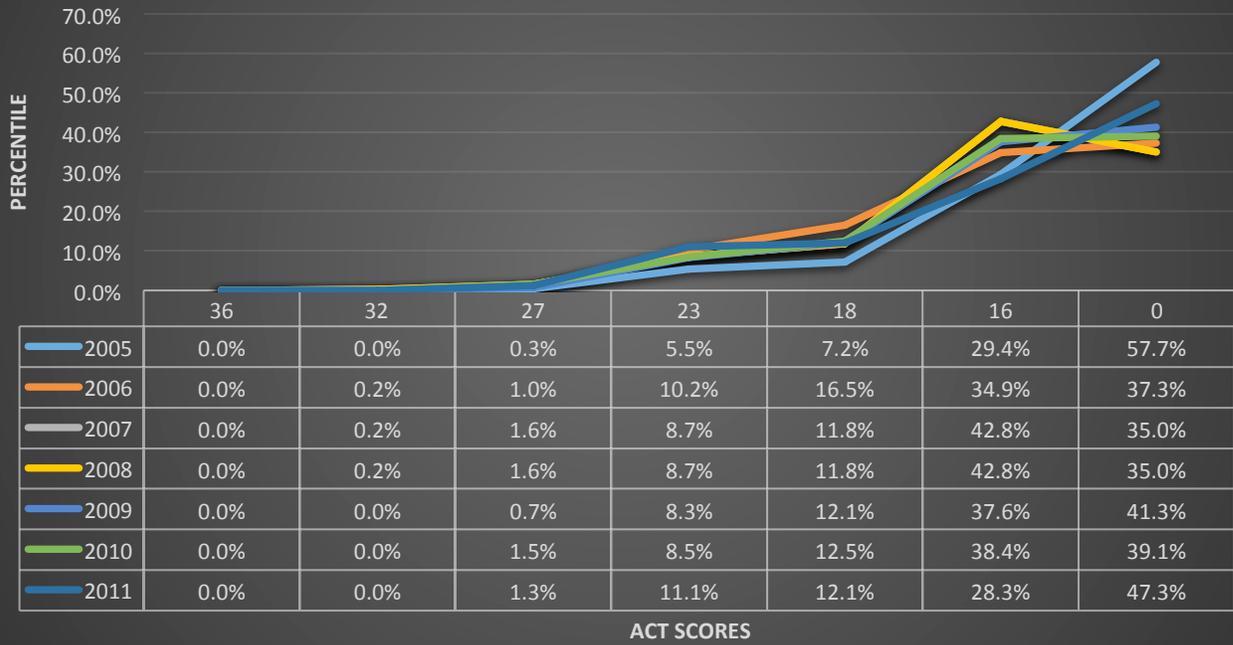
## Maryville's Distribution of ACT-Tested Freshmen



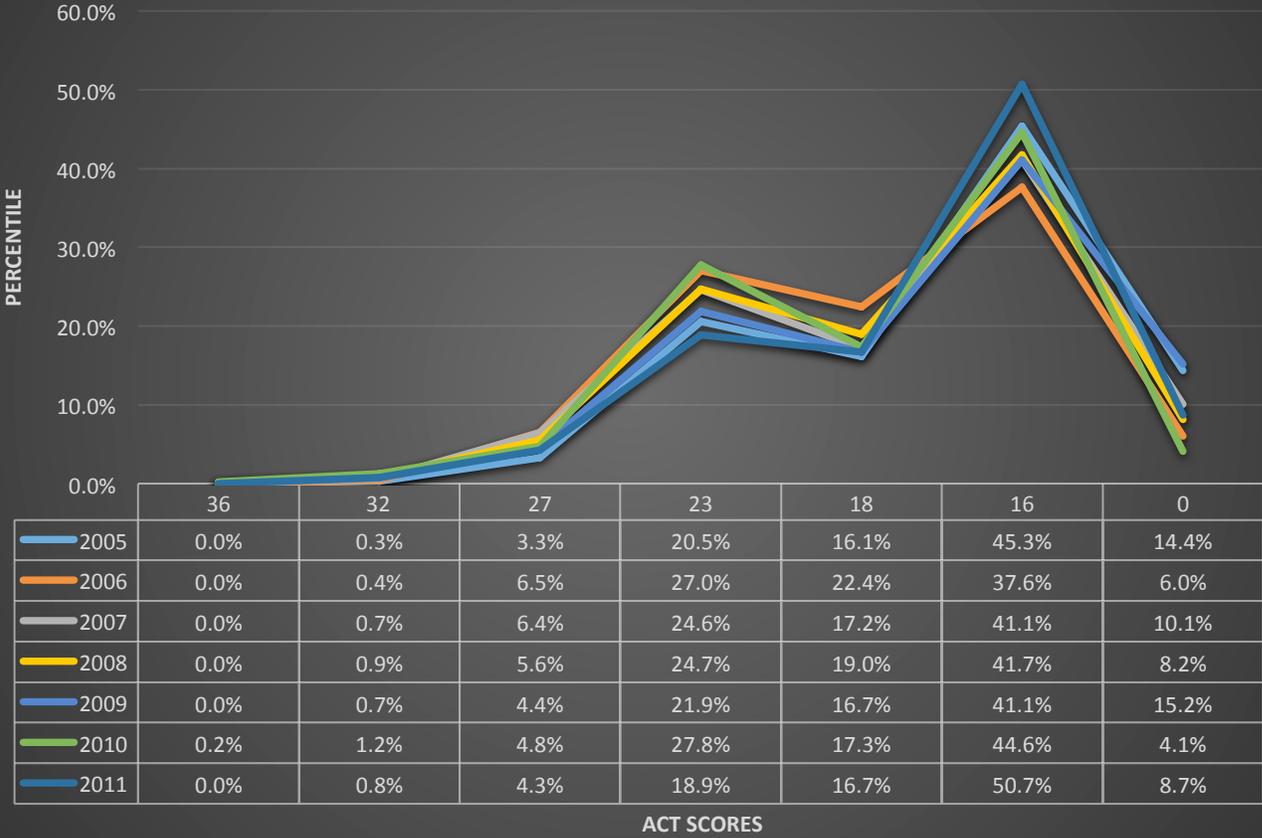
## Southwest's Distribution of ACT-Tested Freshmen



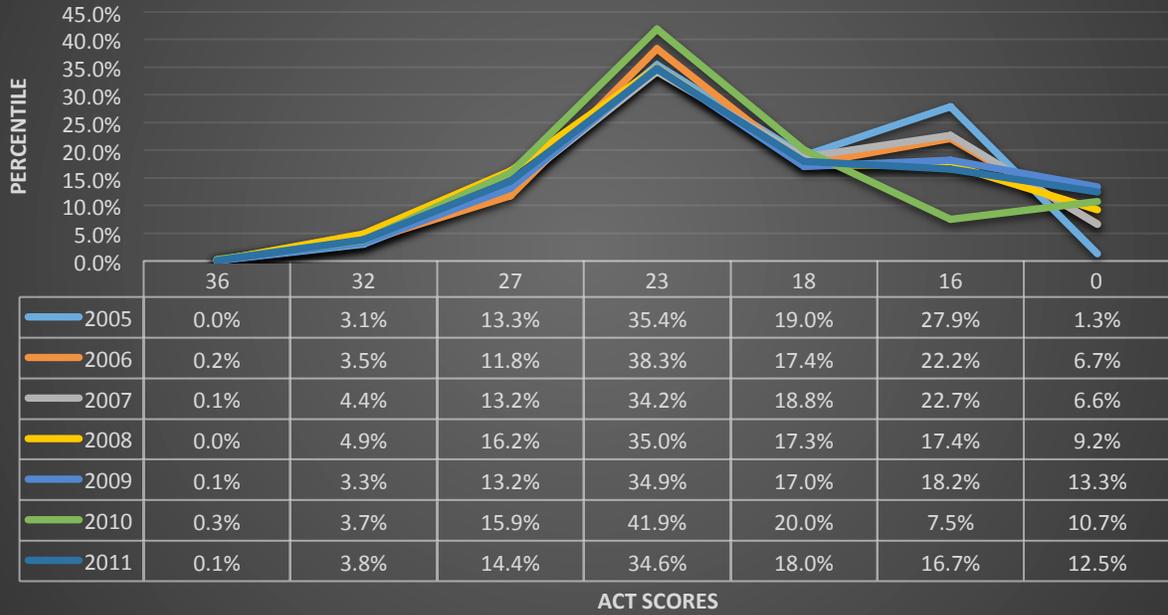
## Harris-Stowe's Distribution of ACT-Tested Freshmen



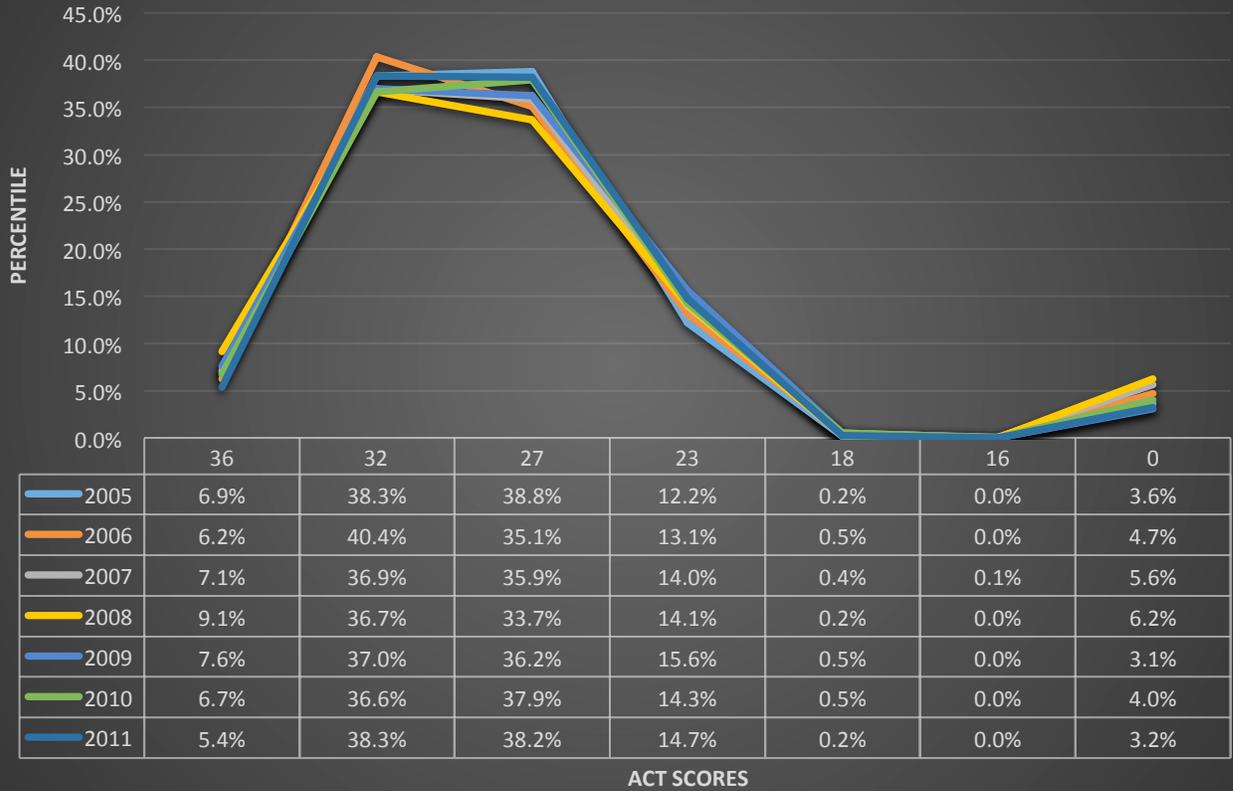
# Lincoln's Distribution of ACT-Tested Freshmen



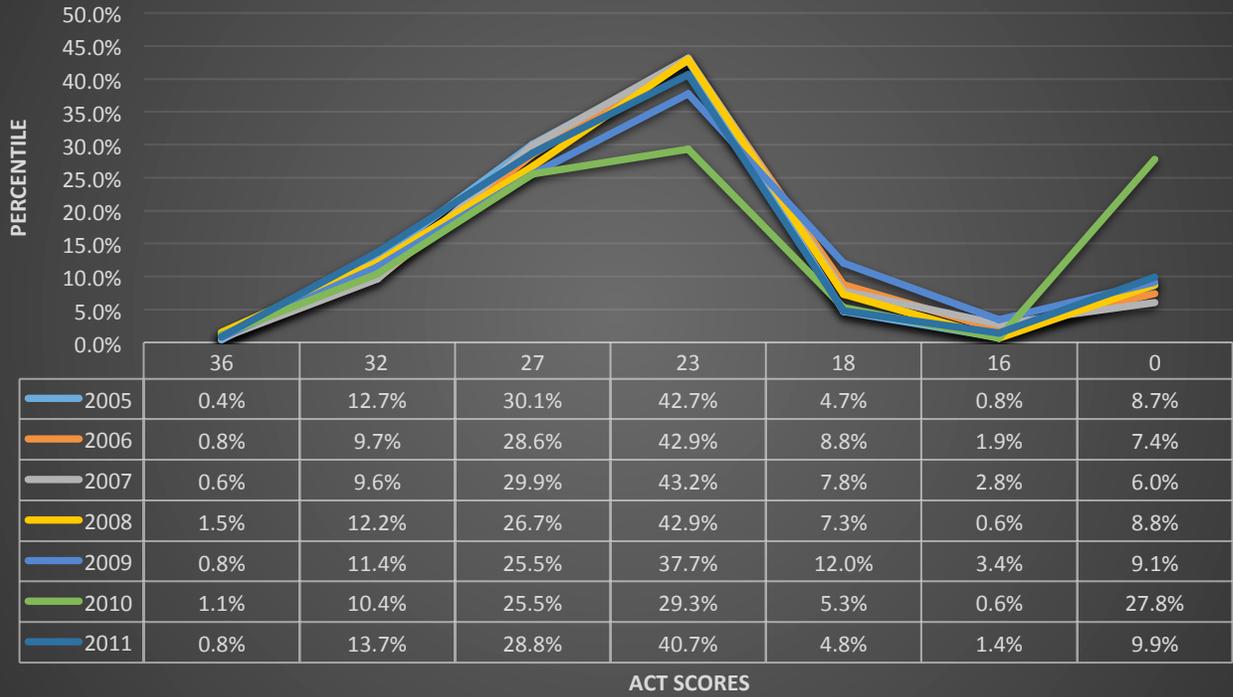
## Missouri Western's Distribution of Act-Tested Freshmen

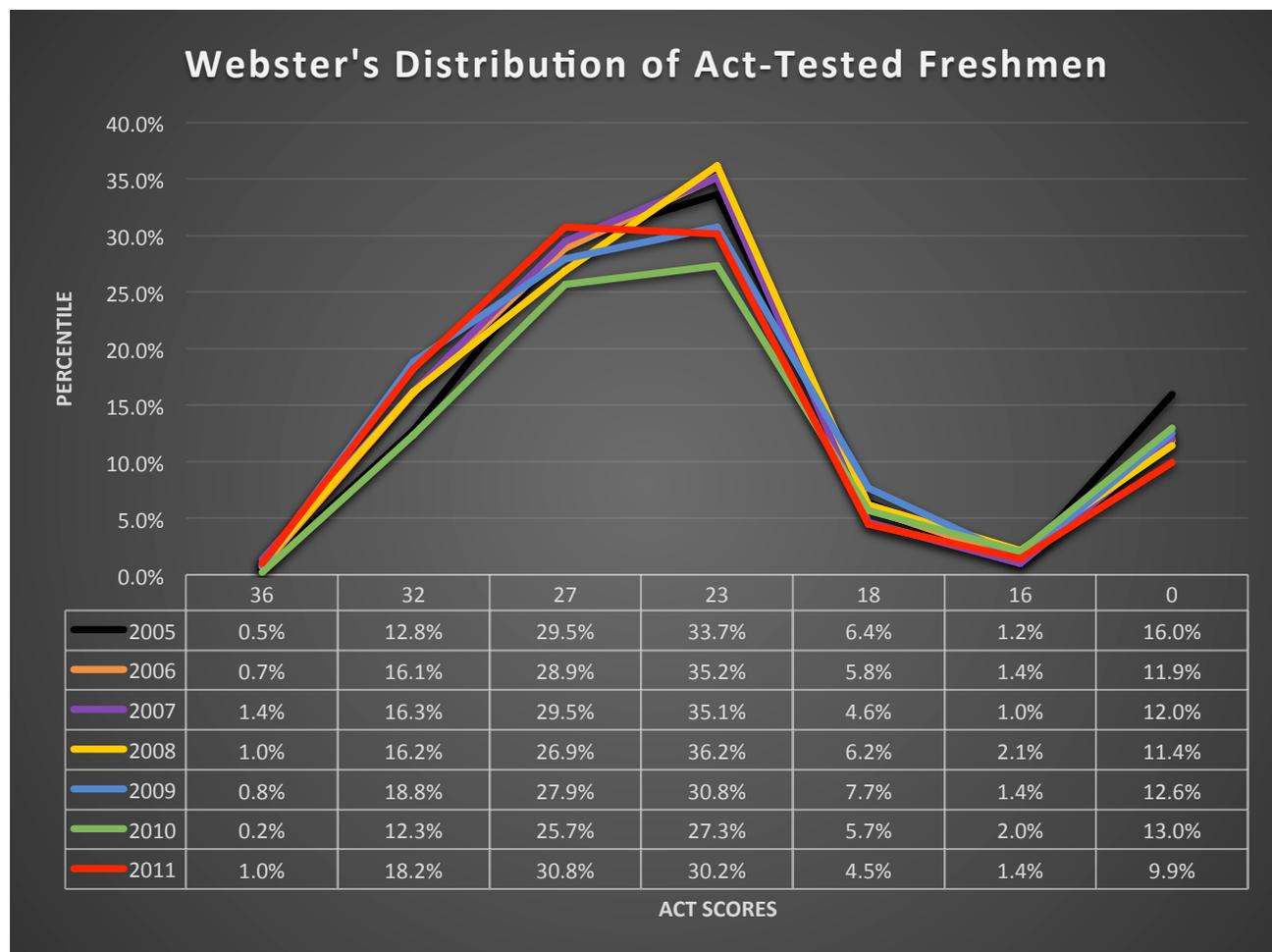


## Truman's Distribution of ACT-Tested Freshmen



## UMSL's Distribution of ACT-Tested Freshmen





This chart illustrates Webster's distribution of ACT-tested freshmen for the following years: 2005, 2006, 2007, 2008, 2009, 2010, and 2011

#### **Issues:**

Overall, this was a great learning experience for me. I definitely improved my research skills, and problems solving skills while doing this exercise. At first, I was confused, I found the process challenging, and I was not able to convert the dataset into graphs. After figuring out how to do so, I was able to chart the datasets. After charting a few datasets, I realized that the data I was charting was not helpful towards my experiment. But after receiving some assistance from my professor, I was able to proceed with the experiment. I believe that my results are accurate. Overall, I enjoyed the project.

#### **References:**

"Missouri Department of Higher Education - Building Missouri's Future...by Degrees." *MDHE Stat Sum*. N.p., n.d. Web. 16 Dec. 2013. Retrieved from:

<http://www.dhe.mo.gov/data/statsum/>