

# Measuring Late Night Blood Alcohol Levels in a College Setting

First Year Seminar 060 Fall 2006: Greg Alberti, Charlie Barth, Brittany Callaghan, Andrew Dennis, Mike Faracca, Katherine Hoering, Leslie Hopke, Bryan Lee, Meredith Levensen, Molly Lieberman, Laura Patterson, Tyler Vincent, Liz Witbeck, Cynthia Woodward, and Prof. David W. Craig

## 1. Abstract

292 random late-night blood alcohol tests with matched surveys have been conducted in residence halls every night of the week during the fall 2006 school term. 53% of students sampled had a BAC level of 0.00% and 67% were at 0.05% or less. Protocols for data collection, safety and liability provisions, sample BAC distributions broken down by gender and school night/weekend night, reports of consequences experienced, reports of protective behaviors engaged in, and an assessment of the agreement of measured BAC levels with estimated BAC levels from self report survey data as a measure of the accuracy of self reporting will be presented.

## 2. Motivation for an Alcohol Research Program

- ◆ Harm due to alcohol abuse is of great concern for students, faculty, and administration.
- ◆ Recent research has shown that students perceive alcohol use to be much greater than it actually is. Programs that correct this misperception actually result in reduced levels of abuse.
- ◆ Biochemical information of the levels of alcohol use among students, and the impairment they experience can contribute to reductions in misperceptions of heavy use and therefore strengthen prevention programming on campus.
- ◆ Students learn ethics and procedures for using human subjects in research.

## 3. Protocol for Conducting a BAC Survey

- ◆ Data collection times were selected when the perceived greatest amount of drinking was taking place -- 11pm – 3am
- ◆ Measurement stations were established just inside a randomly selected residence hall each night of the week
- ◆ Subjects were randomly selected for participation from among those passing through the residence hall entrance.
- ◆ Subjects were provided with an explanation of the goals of the project, the anonymity of the data collected, and their voluntary participation.
- ◆ Subjects agreeing to participate submitted a breath sample for analysis on an instrument that only reported a sample number and completed a short two page survey.
- ◆ Subjects were provided with a card with their sample number and told that they could call to get their BAC the next day.

## 4. Data Collection Station



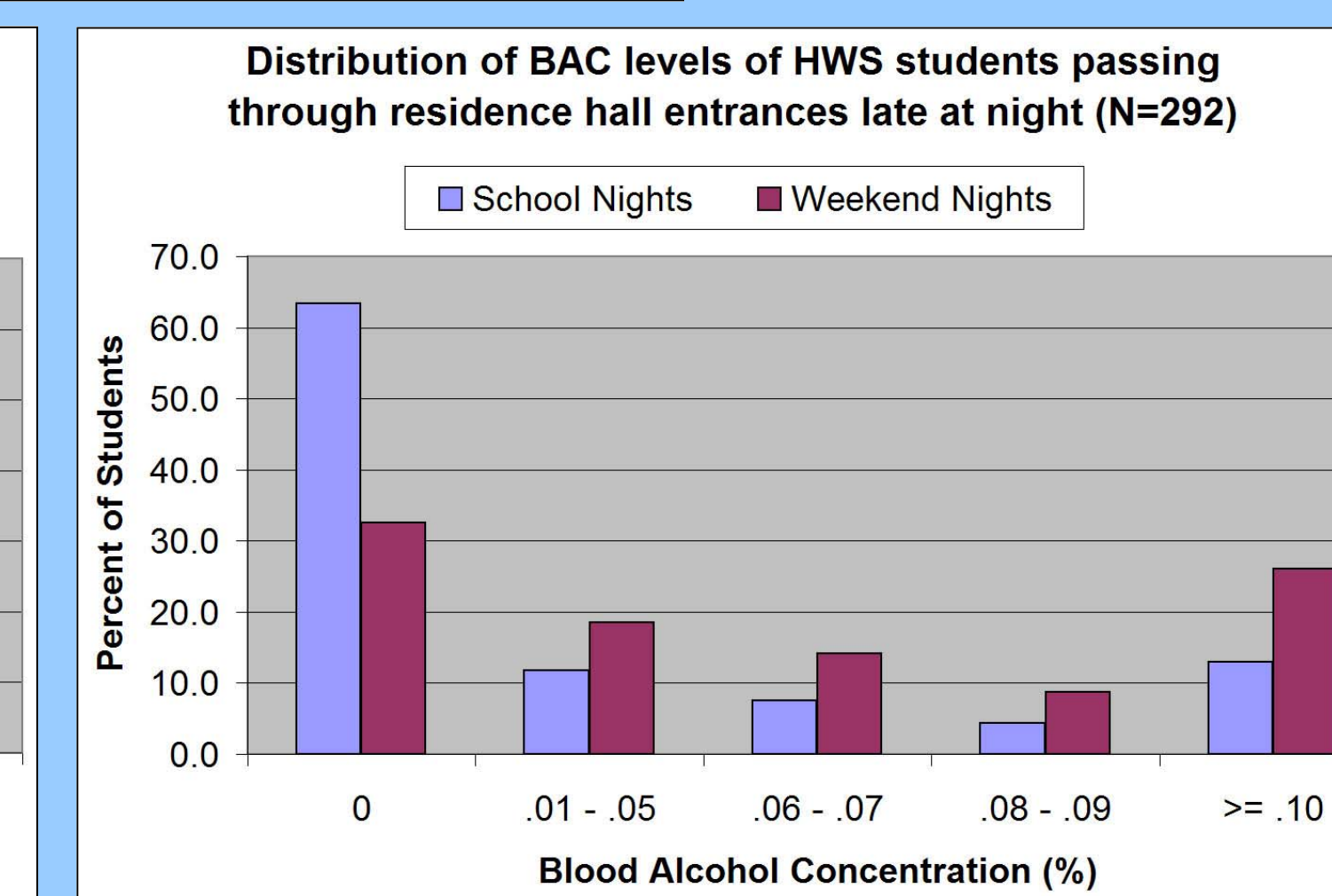
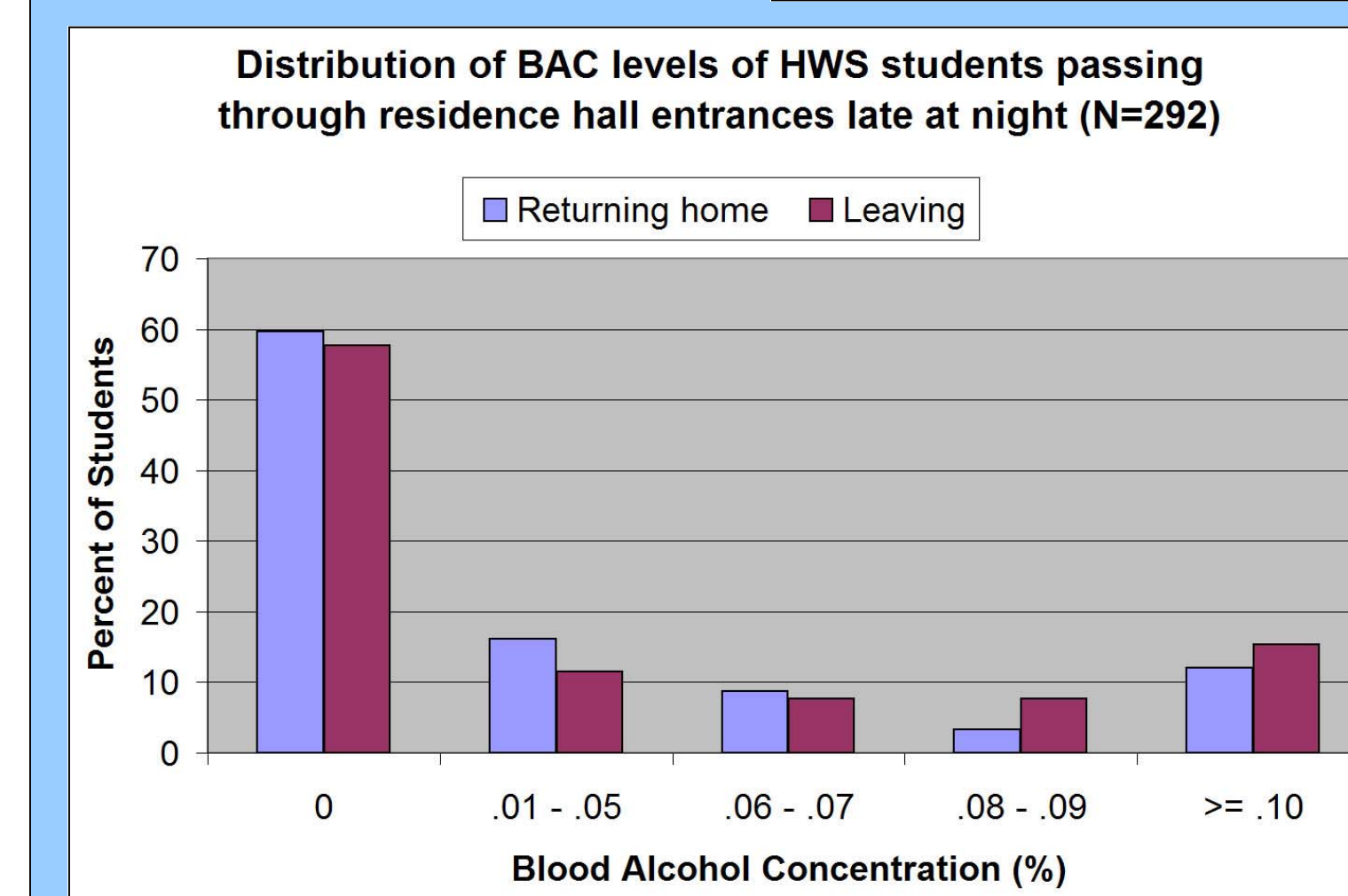
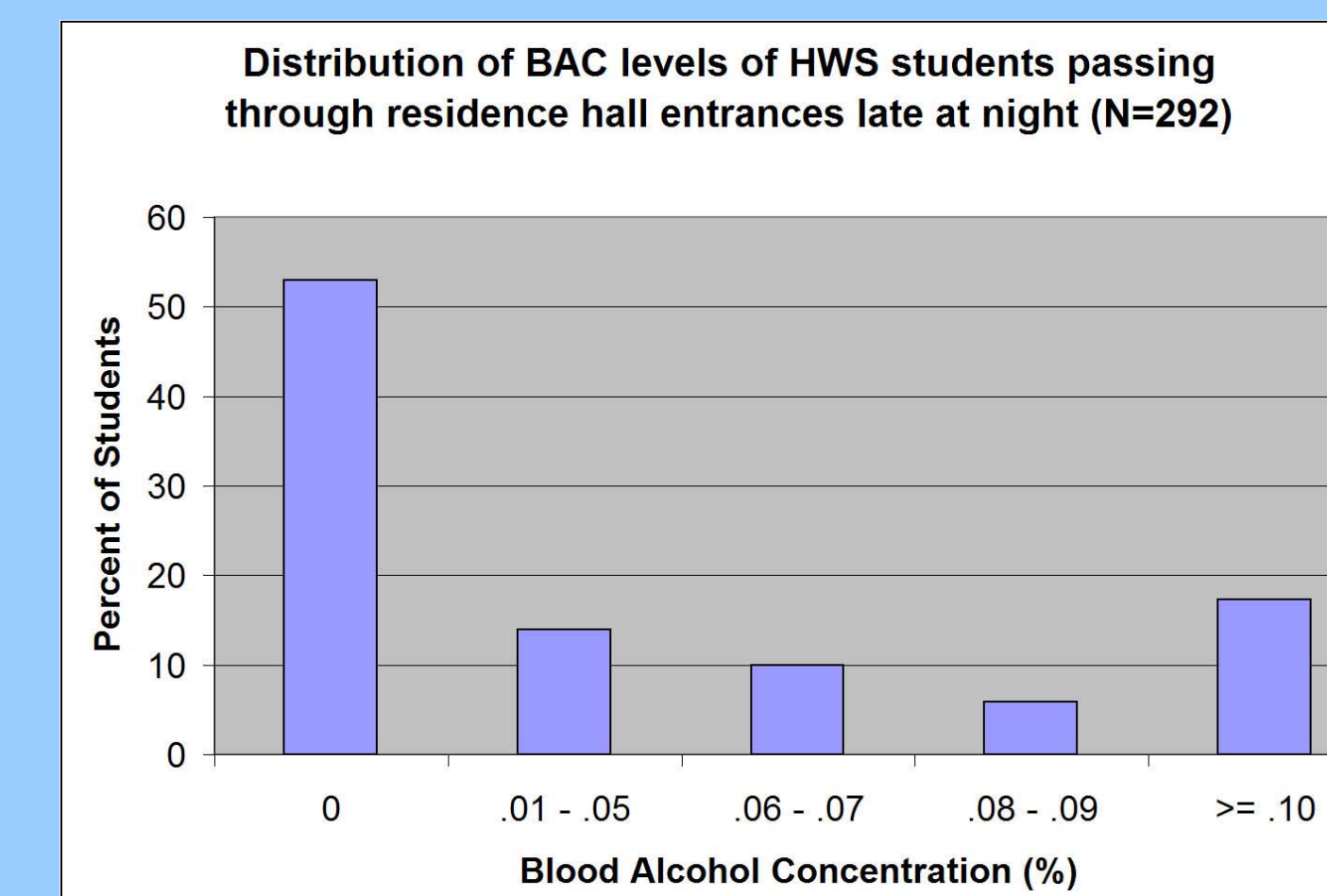
## Breathalyzer and Calibration Simulator



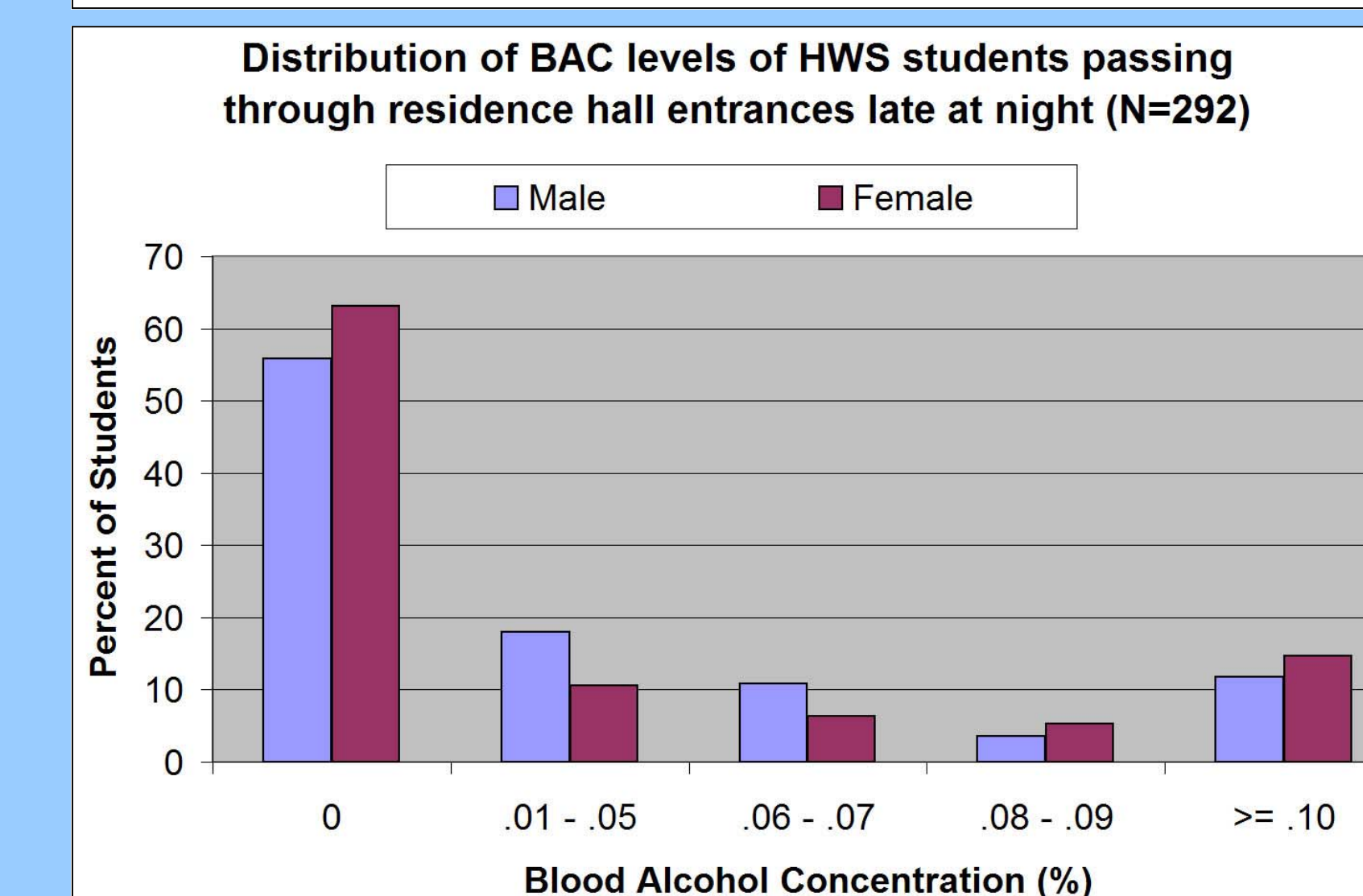
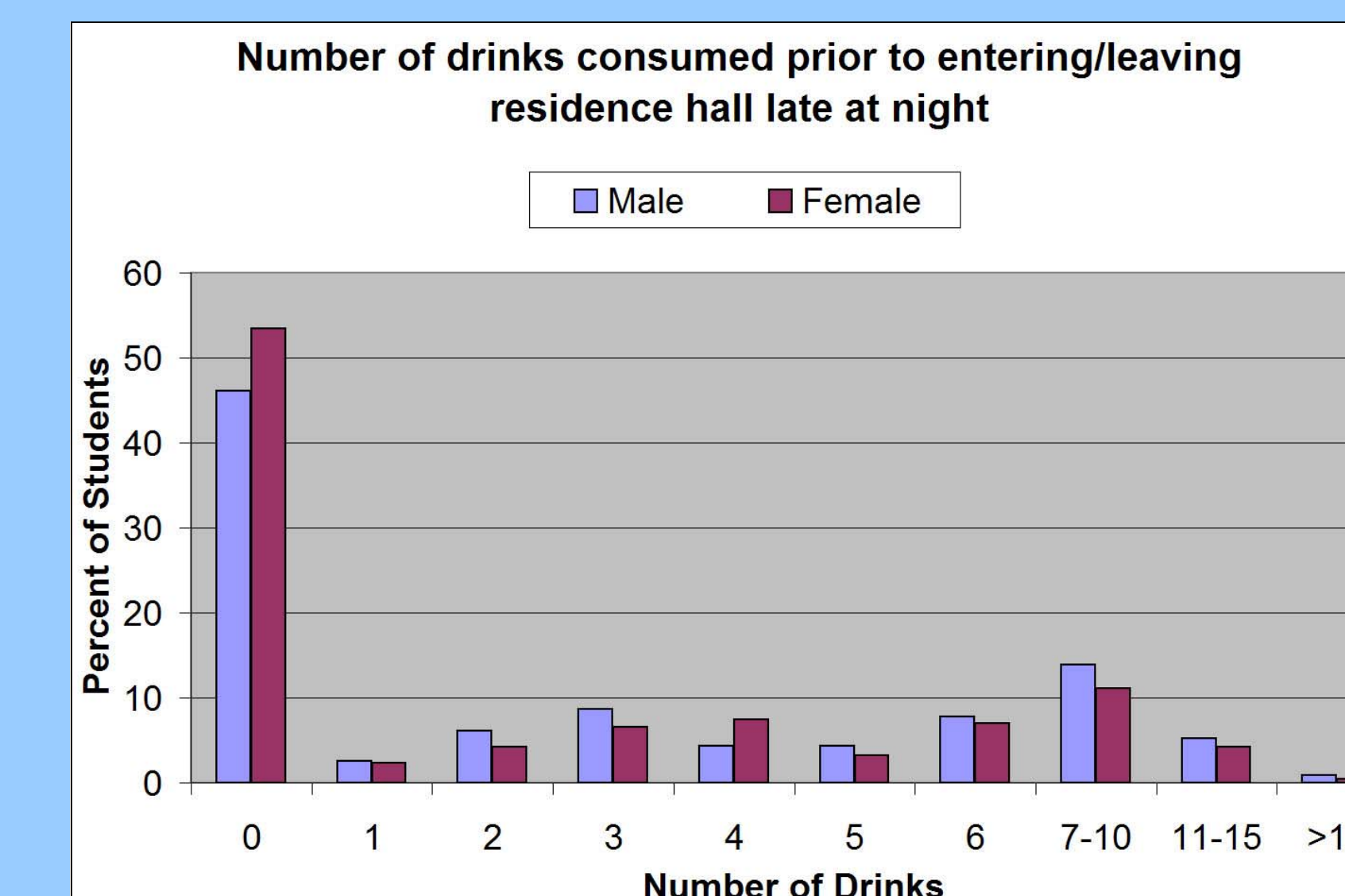
## 5. Sample Characteristics

- ◆ 292 Participants through Fall 2006
- ◆ 79% participation of those randomly selected
- ◆ 55% males, 45% females
- ◆ 11% over 21, 89% under 21
- ◆ 65% from school nights and 35% from weekend nights
- ◆ Class rank: 53% 1st yr, 23% sophomore, 15% junior, and 8% senior

## 6. Summary BAC Distributions



## 7. Gender

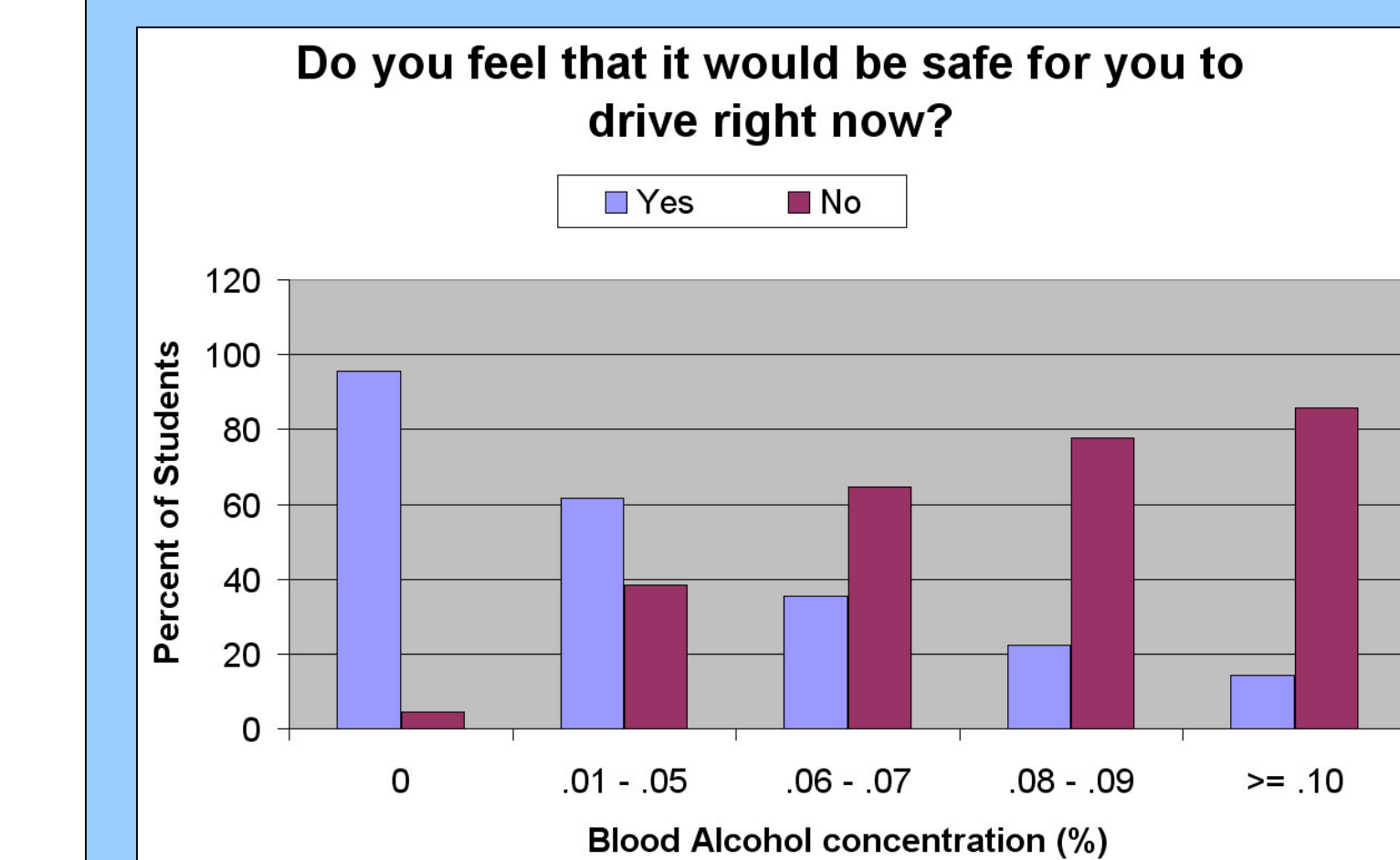


## 8. Blood Alcohol Concentration (BAC) and Behavioral Effects

BAC % (g/dL)	Average Effects
.01 - .05	Between .02 to .04 most people are feeling relaxed, energetic and happy. Time seems to pass quickly. At .05 motor skills may be slightly impaired.
.06 - .07	Giddiness, lowered inhibitions, and impaired judgment; an individual's ability to make rational decisions concerning personal capabilities is affected; continued loss of coordination.
.08 - .09	Muscle coordination definitely impaired and reaction times increased; sensory feelings of numbness in the cheeks and lips and extremities. A BAC of 0.08 is the DWI limit for New York State and most other states.
.10 or higher	Clear deterioration of coordination and reaction times; individuals may stagger and speech become slurred; judgment and memory further affected. Continued depression of motor, sensory, and mental functions at higher levels. Loss of consciousness between .3 and .4

Ref: Corry, JM and Cimbalic, P. (1985). *Drugs: Facts, Alternatives, Decisions* (p171). Wadsworth Publishing Co.

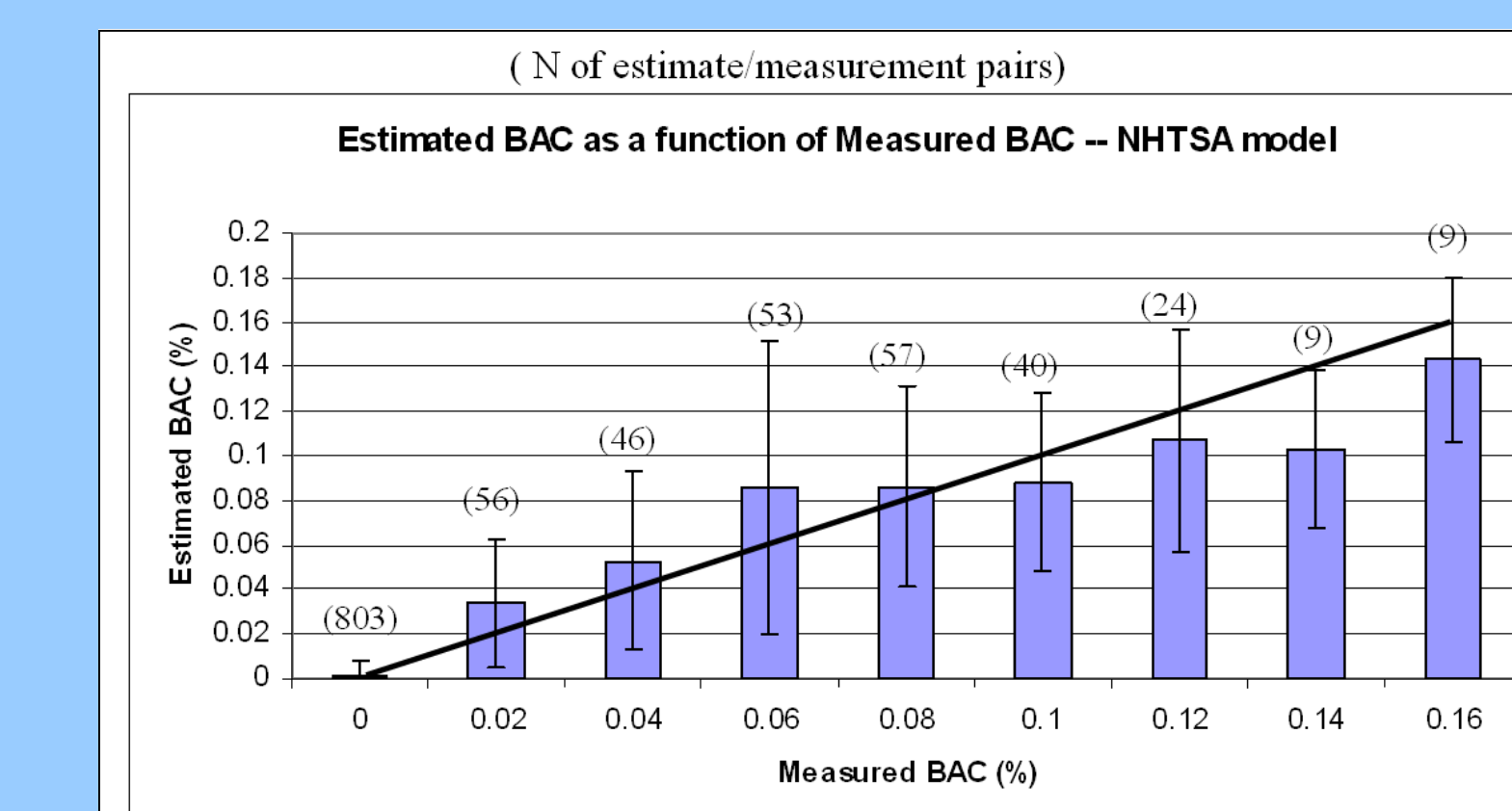
## 9. Impaired Judgment, Protective Behaviors, Consequences



Protective Behavior	Percent Using Occasionally or Frequently
Limit to one drink / hour	33
Eat before or during drinking	77
Limit money spent on alcohol	50
Alternate alcoholic drinks with nonalcoholic drinks	43
Have a designated driver	75
Limit BAC to 0.05% or less	28

Consequence of Drinking	Percent NOT experiencing in last 12 months
Injury to self	70
Injury to others	79
Fighting	73
Property damage	67
Damaged friendship	72
Memory loss	42
Drove impaired	74
Rode with an impaired driver	68
Attempted sexual contact when not desired by other	83
Was sexually active when otherwise would not be	69

## 10. Correlation of NHTSA-Estimated BAC to Measured BAC



Standard Error of Estimate: .026

Regression Coeff. 1.003% +/- .019

\*Data from this panel drawn from past student data