Melding Learning Analytics and Transactional Data to Foster Student Success

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IMS Global Learning Analytics Summit
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University at Buffalo The State University of New York

"Organizations achieving the greatest benefits from analytics ensure the right data is being captured, and blend information and experience in making decisions."

Sam Ransbotham, David Kiron, and Pamela Kirk Prentice. "Beyond the Hype: The Hard Work Behind Analytics Success." MIT Sloan Management Review, March 08, 2016.

The University at Buffalo

- Flagship university in the State University of New York System
- Member of the Association of American Universities
- Headcount: 21,921 undergraduates; 10,002 graduates (Fall 2019)
- Degrees awarded: ~8,800 annually
- More than 110 undergraduate and 300 graduate/professional programs

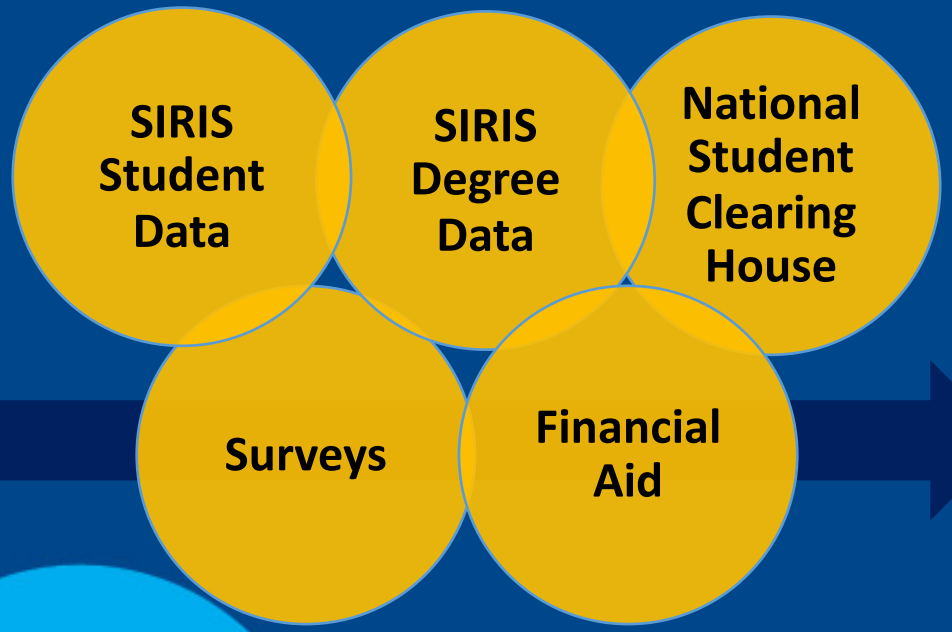
The State University of New York (SUNY)

SUNY is the largest comprehensive system of higher education in the United States

- 64 campuses
- 425,000 students (fall 2018)
- ~ 7,000 degree & certificate programs
- $1.6B research portfolio
- 3 million alumni

Power of SUNY Example: Student Outcomes

Inputs



SUNY DATA WAREHOUSE

Outputs

Traditional Measures

Retention & Graduation Rates by Demographic Characteristics, Program, Campus, Sector, System

Expanded Student Outcome Measures

Educational Outcomes Across SUNY (Transfer) and Beyond to Non-SUNY Institutions

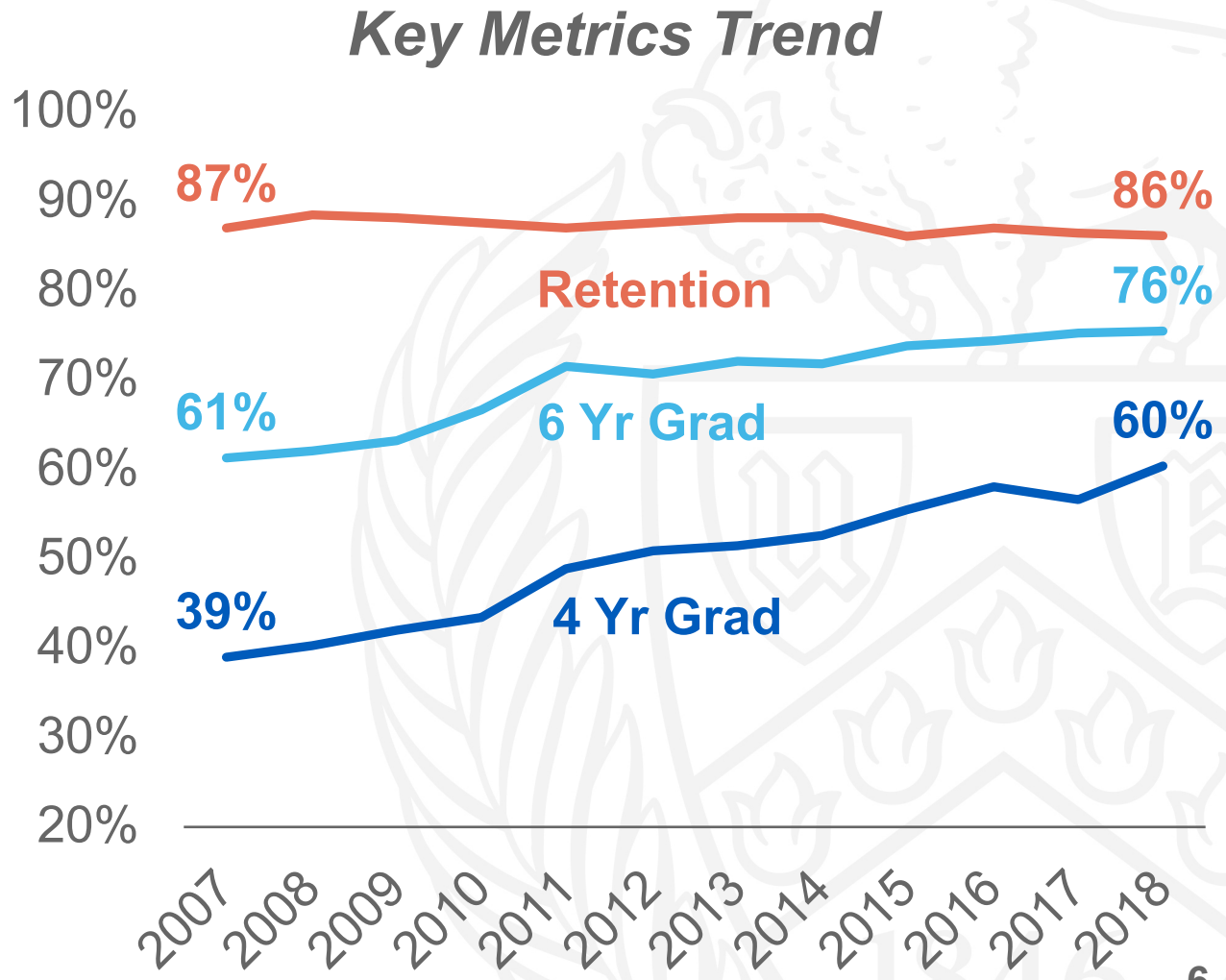
SIRIS = *SUNY* Institutional Research Information System

Student Success at UB

Finish in 4
UB'S COMMITMENT TO YOUR GRADUATION

EAB

CIVITAS LEARNING



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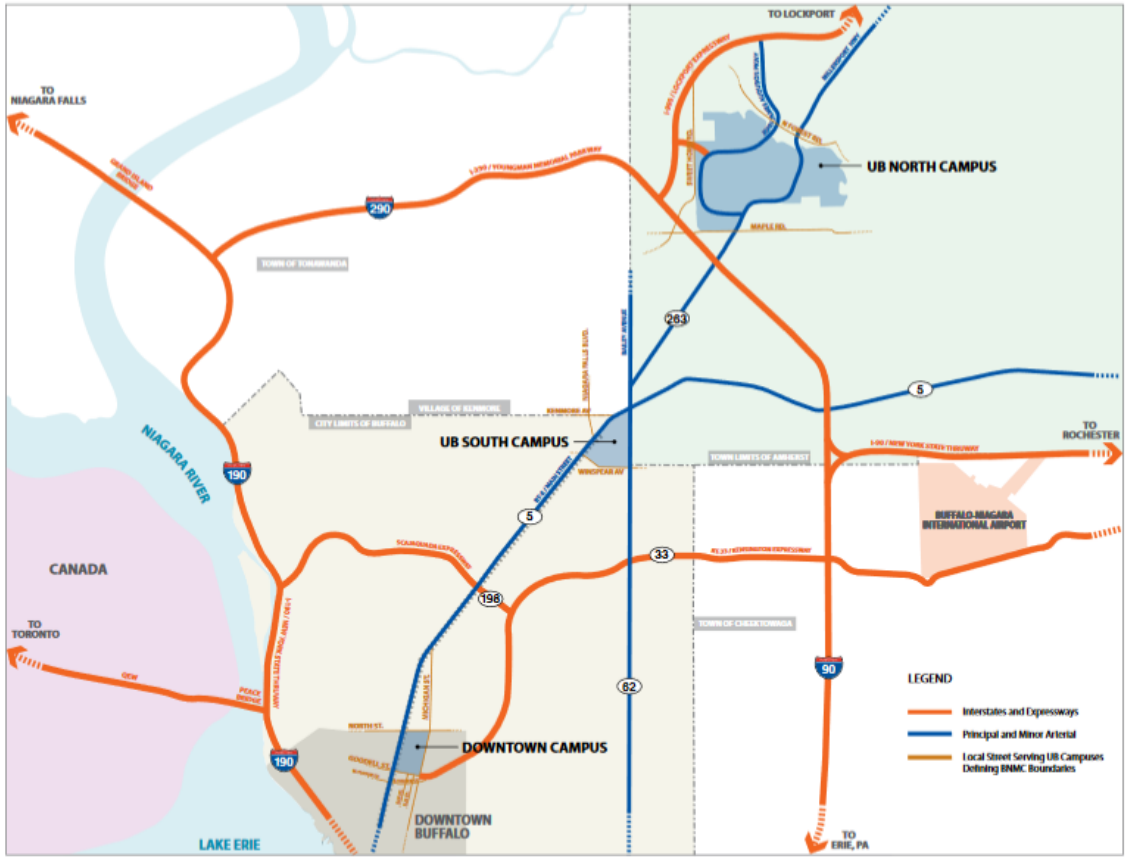
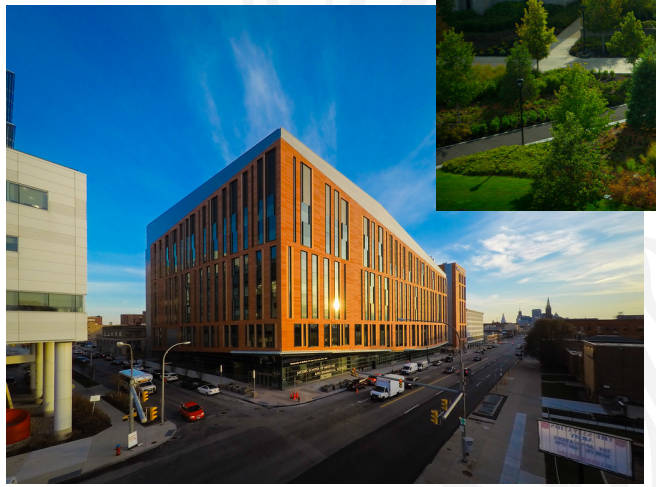
Bus Routes

Three Campuses
North, South and Downtown





Bus Route Data

- Card swipe required to ride
- Collects geo location data, date & time
- Some bus usage is positive, some not so positive
- Late night bus service between North & South campus

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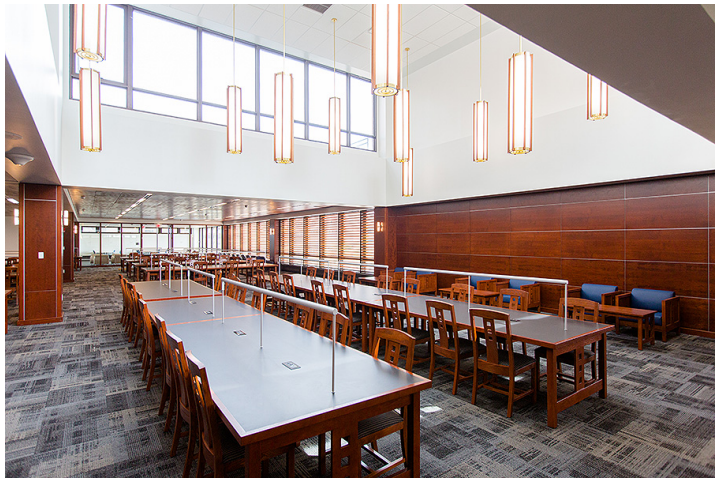
Library Resource Usage

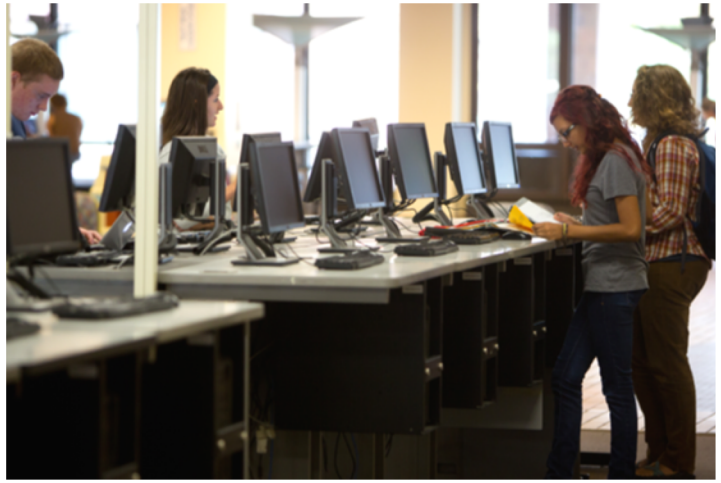
Use of Undergraduate Library

Reading Room



Group Study Rooms

Library Terminals



Café

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Class Attendance

Monitoring Class Attendance

- Monitored attendance in introductory biology class
- Two sections, same instructor, one used Turning Technologies clickers used to record attendance
- Intervention when students missed class
- More students achieving A grades, fewer receiving F grades
- Stronger performance on final exam

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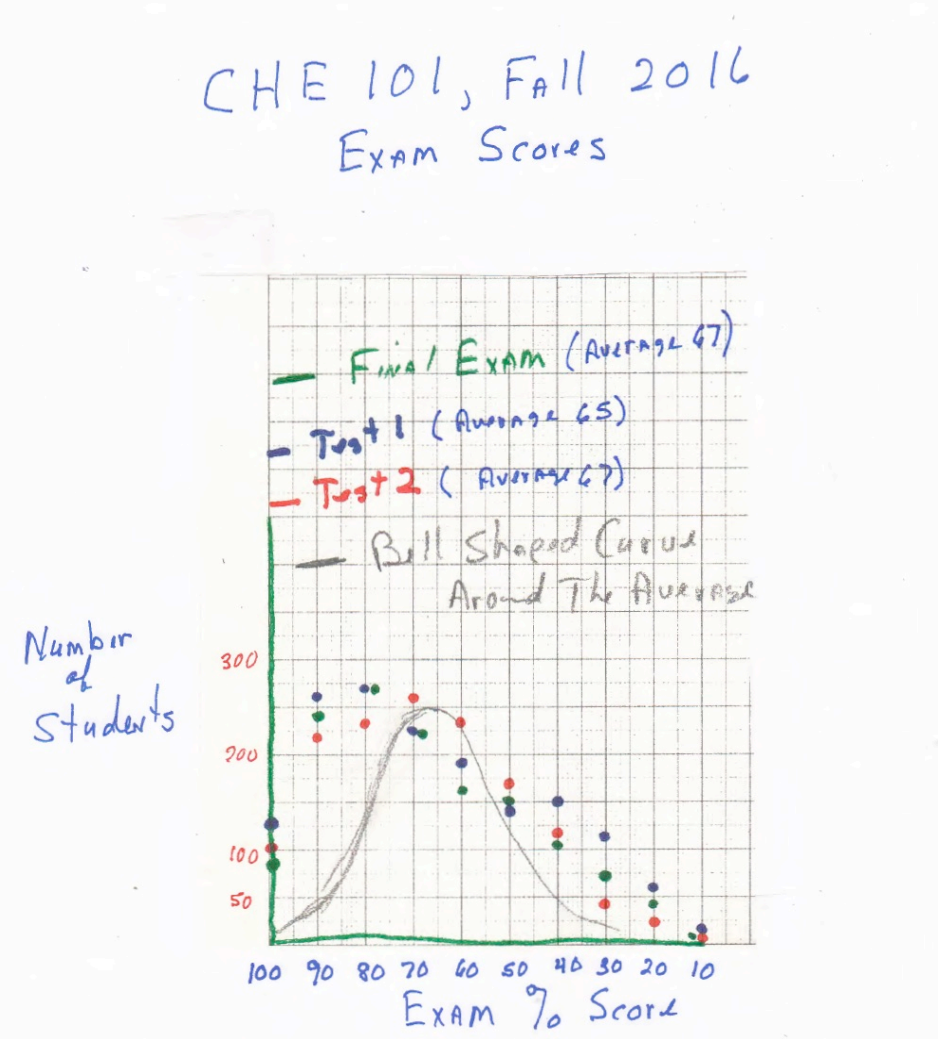
Predictive Modeling of Students Success in A Freshman Chemistry Course



THE PROBLEM

- The distribution of exam scores for the Fall 2016 Introduction to Chemistry student cohort
- Growing concern around what seemed to be 2 different grade distributions or 2 different student populations

WHY?

Is there a difference in student factors within the cohort?

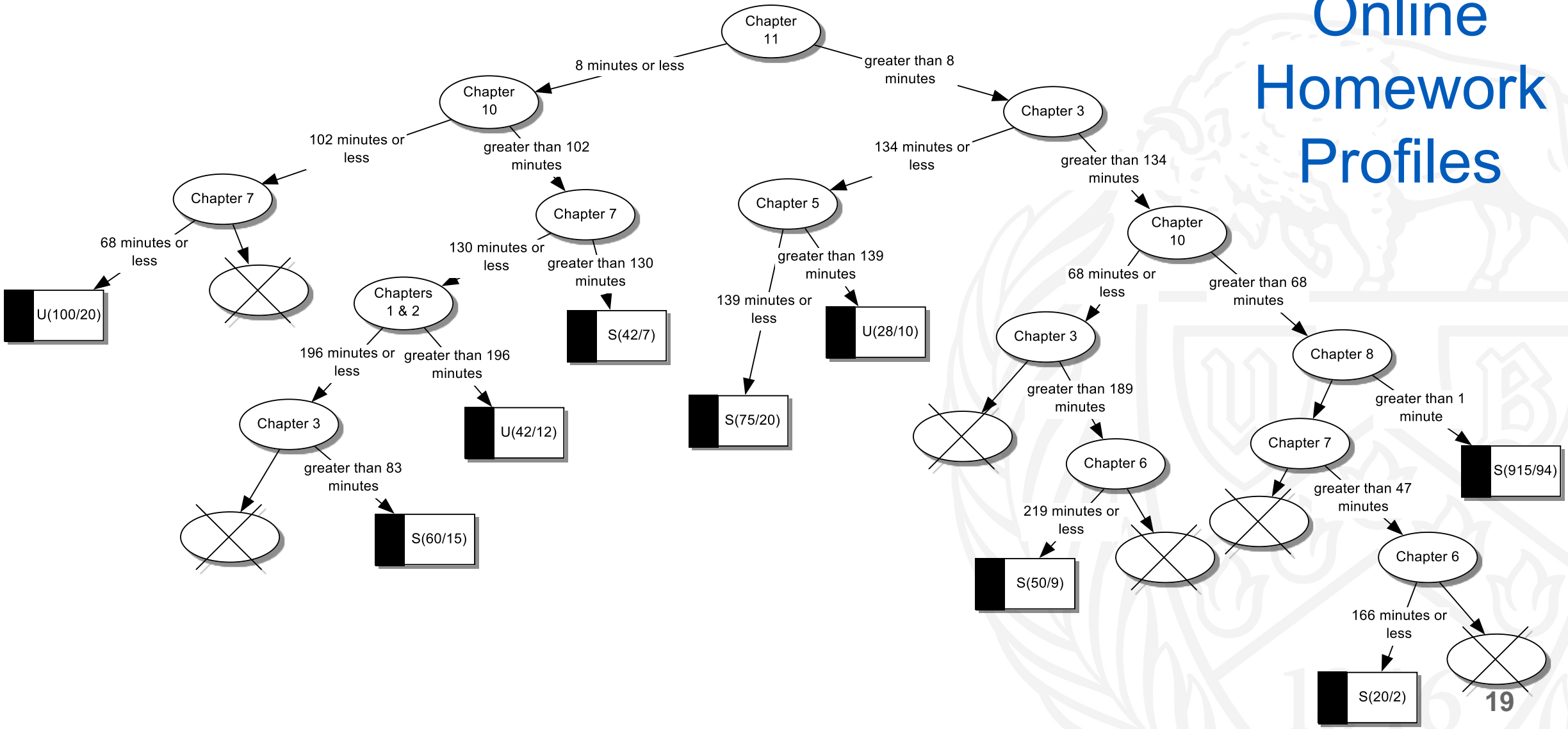
Statistically significant results were found for the following variables:

- Course Section
- Gender
- Student Status
- EOP Status
- Ethnicity

1-Factor ANOVA Results

Variable	F-Statistic	Significance
Course Section	5.432	.000*
Gender	5.670	.017*
Student Repeat	0.860	.354
STEM Plan	0.812	.368
Student Status	34.609	.000*
EOP Status	6.343	.012*
Athlete Status	0.048	.827
Honor Status	63.237	.000*
Ethnicity	9.852	.000*
Residency Status	1.485	.227
* p< 0.05		

Online Homework Profiles



Melding, Modeling, Mentoring

QUESTIONS?