Library Data and Student Success

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Existing Measures

- Long history of measuring input, output, external perceptions of quality and satisfaction with library services
- Expenditures, staffing effects on retention
- Information literacy instruction
- Collections, facilities on enrollment decisions

...useful for management of library services, collections and resources but...

UK Library Impact Data Project

- 2010, University of Huddersfield
  - 700 courses (2005-2009)
  - 3 indicators of library usage (access to e-resources, book loans, access to the library)
- 2011, 8 UK institutions joined
  - 33,000 students, JISC funding
  - Grade, loans, e-resources accessed, times entered the library, school
- Focusing on non/low use and achievement

Call to Action

- Value of Academic Libraries: A Comprehensive Research Review and Report (ACRL)
  - Assessment management systems
  - Develop systems to collect data on individual library user behavior
  - Record and increase library impact on student enrollment
  - Link libraries to improved student retention and graduation rates
  - Track library influences on increased student achievement
  - Demonstrate and develop library impact on student learning

Gym Bags and Mortarboards

- Student success measures
  - First Year Retention and 5 year graduation
- 5211 students in sample (2001)
- Tinto's 1975 model of social and academic integration
- "able to demonstrate that actual usage of CRFs (campus recreational facilities) does have a positive association with academic success, even while controlling for other important academic, financial, and social fit factors."

Layers of Data

Office of Institutional Research Performance Data
Term and Cum GPA, Retention

Office of Institutional Research Demographics Data
College, Level, Major, Gender, Ethnicity, Age

Libraries Data (13 Access Points)
Circulation, Digital, Instruction, Reference, and Workstation

Layers of Data

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A Word about Privacy

- In order to use OIR data, we must retain the U of M Internet ID
- For now, not aggregating anything about the library interaction other than count

This	But not this
Checked out X books	Titles
Attended X workshops	Which workshops
Reference interaction	Substance of interaction
Logged into library workstation	Location, duration, actual activity
Used X digital resources of Y type	Which ones

Circulation

- Loans
  - Both new check-outs and renewals
  - Gathered by extracting data from Aleph transaction records
  - Internet ID and date of transaction
  - *About 45% = Renewal data*
- ILL Requests
  - Gathered by extracting data from ILLiad
  - ILLiad ID and date of transaction
  - *Not all IDs were U of M Internet IDs*

Digital

- Anytime someone logged into our digital resources with a U of M Internet ID
  - Database logins
  - E-Journal logins
  - E-Book logins
  - Website logins
- *Due to IP based authentication, we did not track on campus usage of databases, e-journals, and e-books*
  - Estimate - Missing 10-20% of our traffic
- This is only initial point of access, not actual usage

Reference

- Online reference transactions
  - Captured from QuestionPoint data
  - Some of the more difficult data to capture
  - *We did not capture ref desk traffic or research consultations*
- Peer Research consulting data
  - One-on-one assistance to develop research strategies
  - U of M student consultants

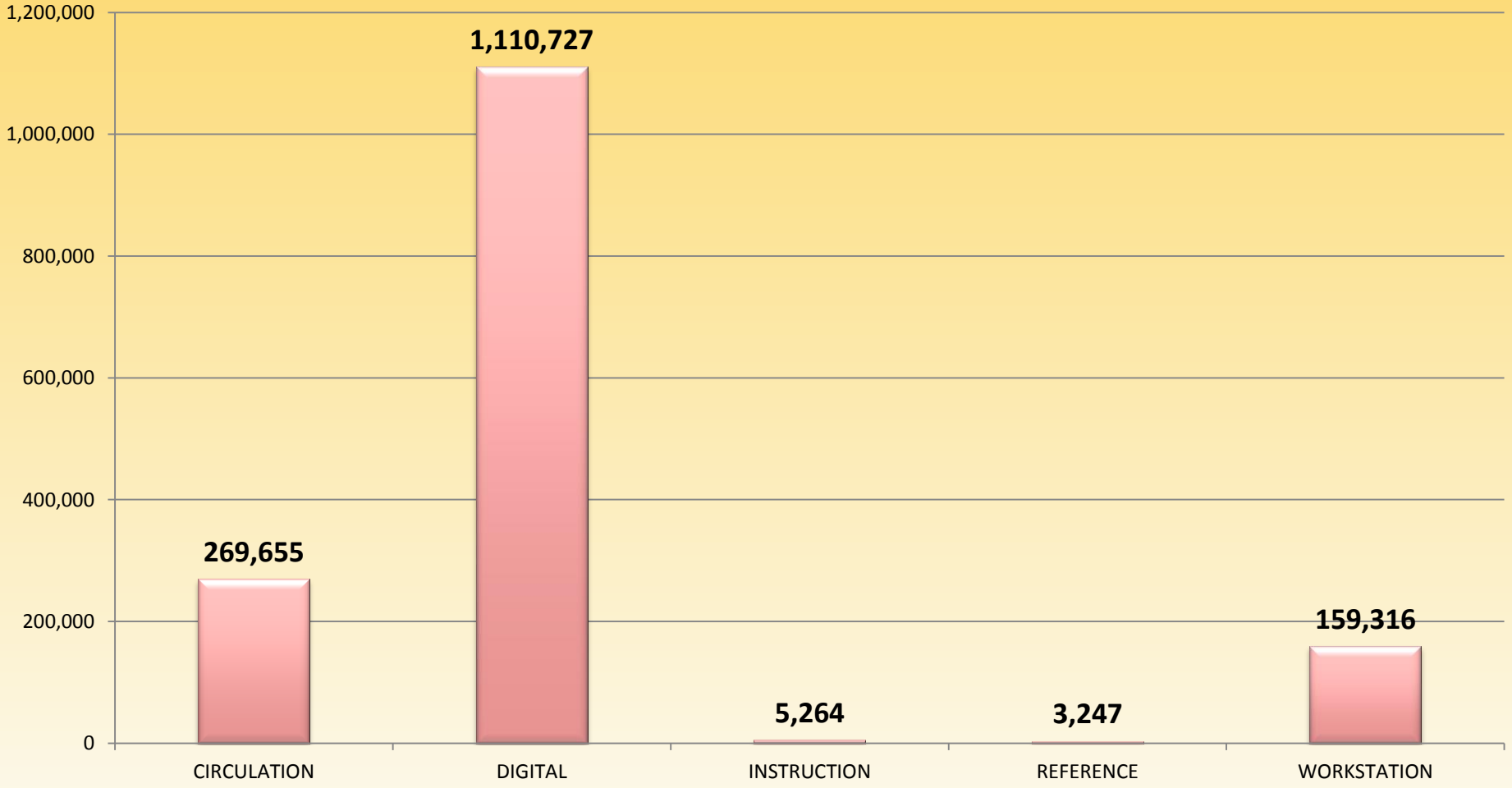
Instruction

- Workshop registrations
  - Captured by Drupal-based registration module
  - *Registration does not mean attendance*
- Intro to Libraries I workshop
- Intro to Libraries II workshop
- Course-integrated librarian instruction
  - Everyone registered for the course/section
  - *All students may not have been present*

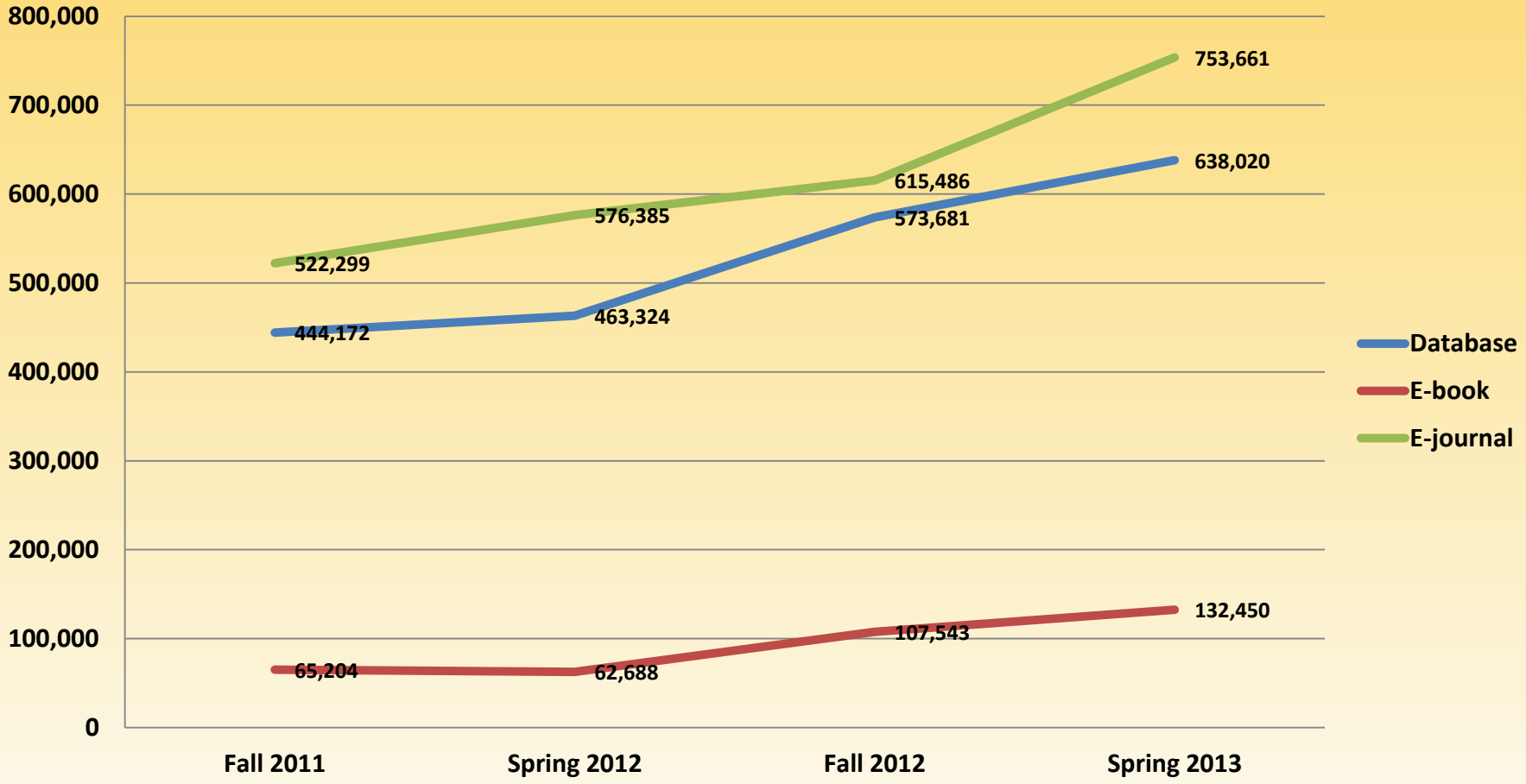
Workstation

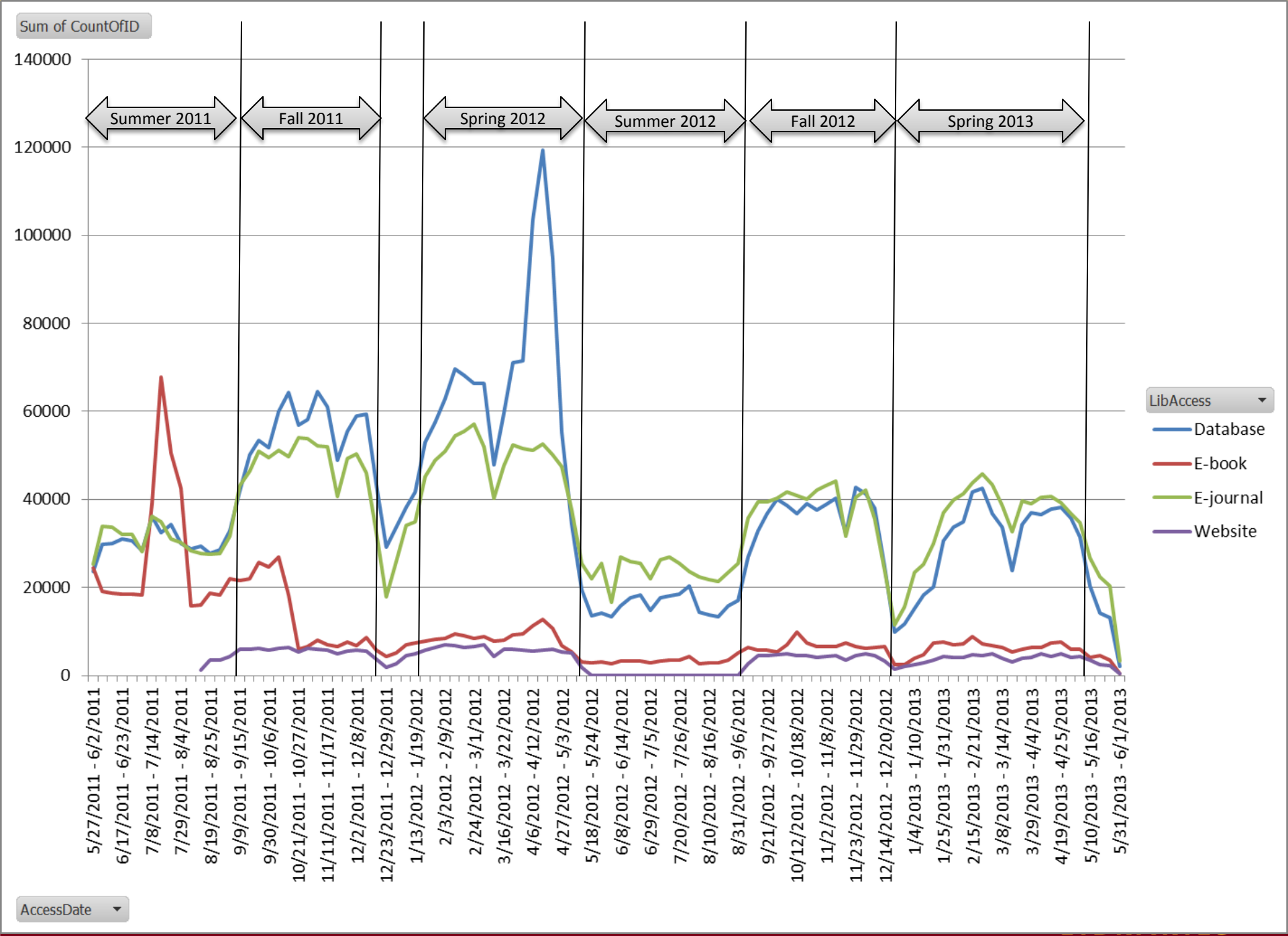
- U of M library workstation logins
  - Captured by Cybrarian application used to authenticate library users
  - *Does not include complete data from SMART Learning Commons*
- Reveals a flaw with regard to capturing “library as place”
  - Difficult to gather Internet IDs if students don’t give them to us

Category Transactions



Data Trends


800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
Fall 2011
Spring 2012
Fall 2012
Spring 2013
753,661
638,020
615,486
576,385
573,681
522,299
463,324
444,172
132,450
107,543
65,204
62,688
Database
E-book
E-journal


Sum of CountOfID
140000
120000
100000
80000
60000
40000
20000
0
Summer 2011
Fall 2011
Spring 2012
Summer 2012
Fall 2012
Spring 2013
5/27/2011 - 6/2/2011
6/17/2011 - 6/23/2011
7/8/2011 - 7/14/2011
7/29/2011 - 8/4/2011
8/19/2011 - 8/25/2011
9/9/2011 - 9/15/2011
9/30/2011 - 10/6/2011
10/21/2011 - 10/27/2011
11/11/2011 - 11/17/2011
12/2/2011 - 12/8/2011
12/23/2011 - 12/29/2011
1/13/2012 - 1/19/2012
2/3/2012 - 2/9/2012
2/24/2012 - 3/1/2012
3/16/2012 - 3/22/2012
4/6/2012 - 4/12/2012
4/27/2012 - 5/3/2012
5/18/2012 - 5/24/2012
6/8/2012 - 6/14/2012
6/29/2012 - 7/5/2012
7/20/2012 - 7/26/2012
8/10/2012 - 8/16/2012
8/31/2012 - 9/6/2012
9/21/2012 - 9/27/2012
10/12/2012 - 10/18/2012
11/2/2012 - 11/8/2012
11/23/2012 - 11/29/2012
12/14/2012 - 12/20/2012
1/4/2013 - 1/10/2013
1/25/2013 - 1/31/2013
2/15/2013 - 2/21/2013
3/8/2013 - 3/14/2013
3/29/2013 - 4/4/2013
4/19/2013 - 4/25/2013
5/10/2013 - 5/16/2013
5/31/2013 - 6/1/2013
LibAccess
Database
E-book
E-journal
Website
AccessDate

Library Data Layer: 2012-13

- 3,807,288 total transactions in all 5 categories
- 69,952 unique Internet IDs interacted with the Libraries in some identifiable way
- 37,138 people did something in only one of the five categories we measured
- 283 people did something in all five categories over the course of the year
- 8349 people did only one of the 17 things we measured **and did it only once**

Questions we can't answer alone

- How many undergraduates used the library?
- How many graduate students?
- Do some colleges use the libraries more than others?
- How many potential users are there?
- Are students who use the libraries more successful?

Layers of Data

Office of Institutional Research Demographics Data
College, Level, Major, Gender, Ethnicity, Age

Libraries Data (13 Access Points)
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OIR Demographics Layer

- Office of Institutional Research
  - OIR collects and analyzes data to provide information for institutional planning, policy formation, and decision-making
- Key library data numbers:
  - 3,807,288 total transactions in 5 categories
  - 69,952 unique Internet IDs

76%

of **Undergrads**

made use of the Libraries during

2012-2013

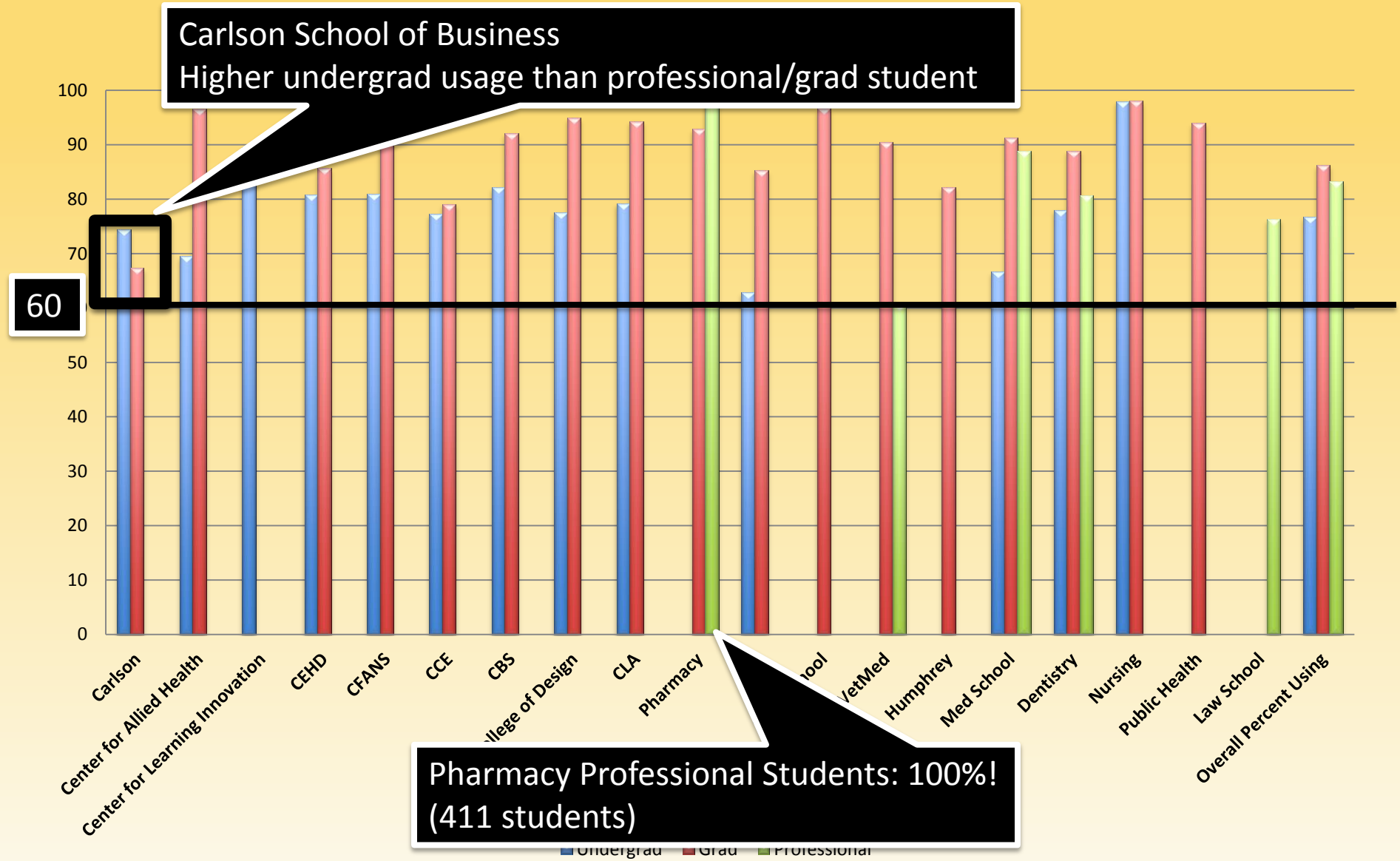
86%

of **Grad Students**

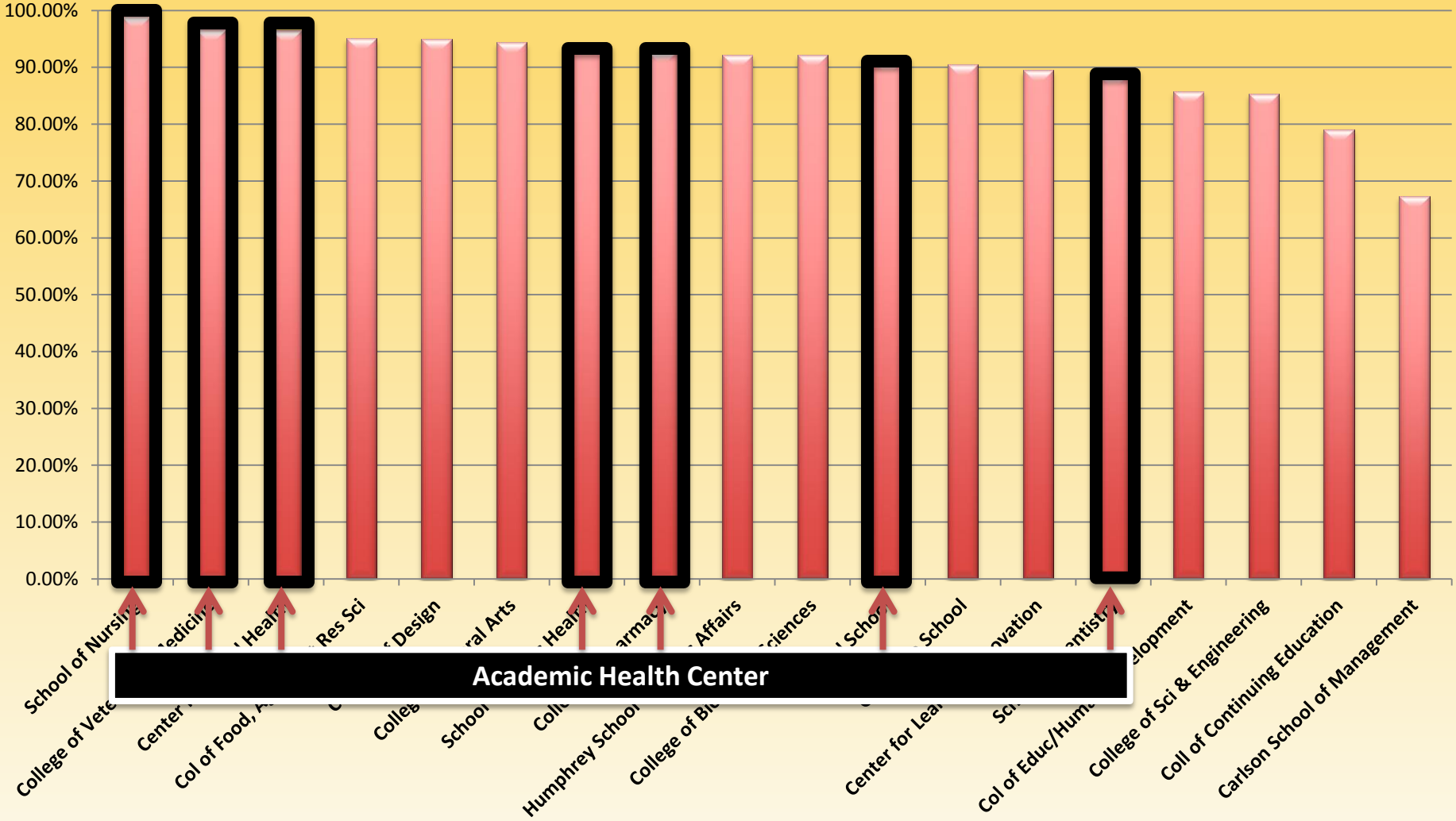
made use of the Libraries during the

2012-2013

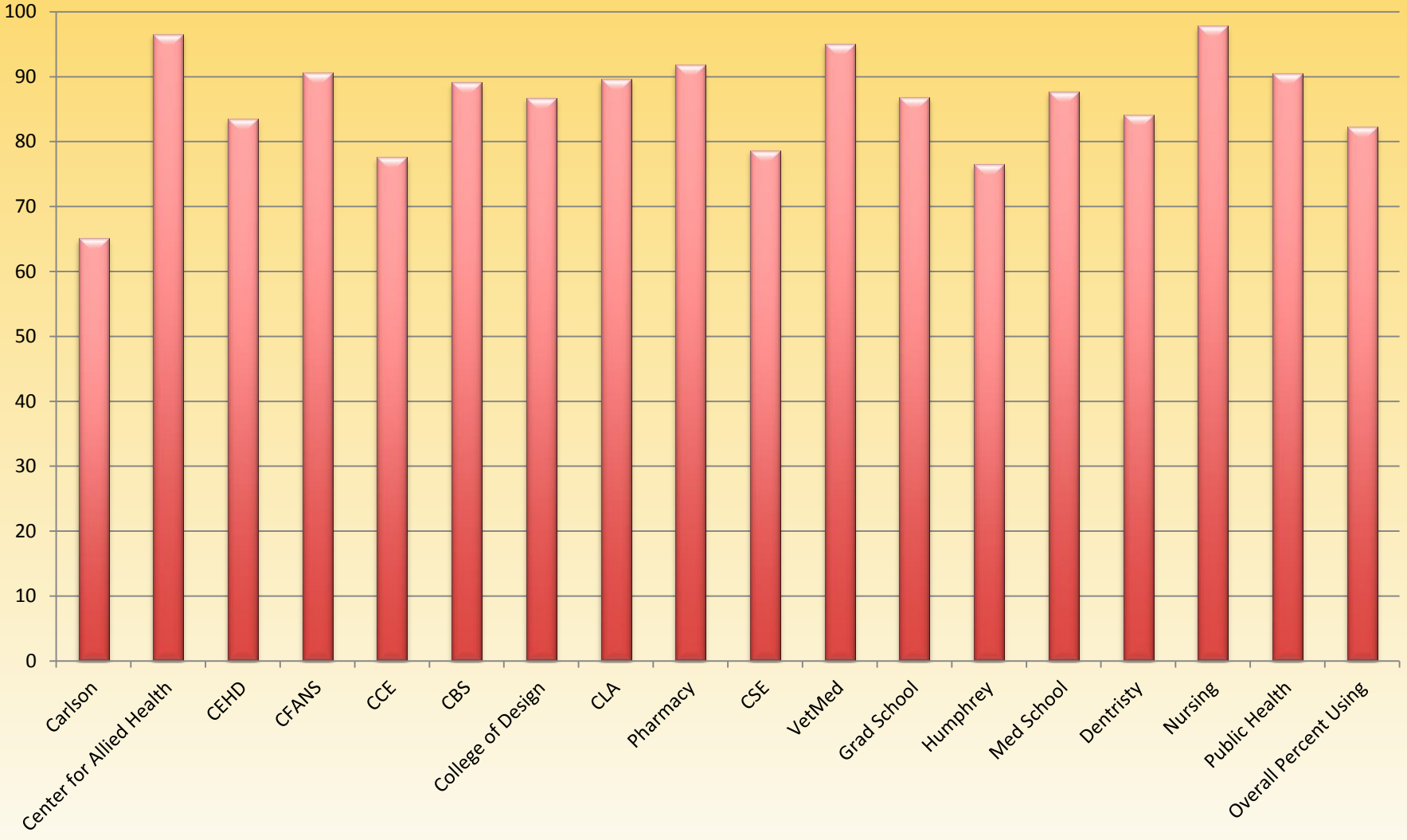
(including professional schools)


Carlson School of Business
Higher undergrad usage than professional/grad student
60
100
90
80
70
50
40
30
20
10
0
Carlson
Center for Allied Health
Center for Learning Innovation
CEHD
CFANS
CCE
CBS
CLA
Pharmacy
VetMed
Humphrey
Med School
Dentistry
Nursing
Public Health
Law School
Overall Percent Using
Pharmacy Professional Students: 100%!
(411 students)

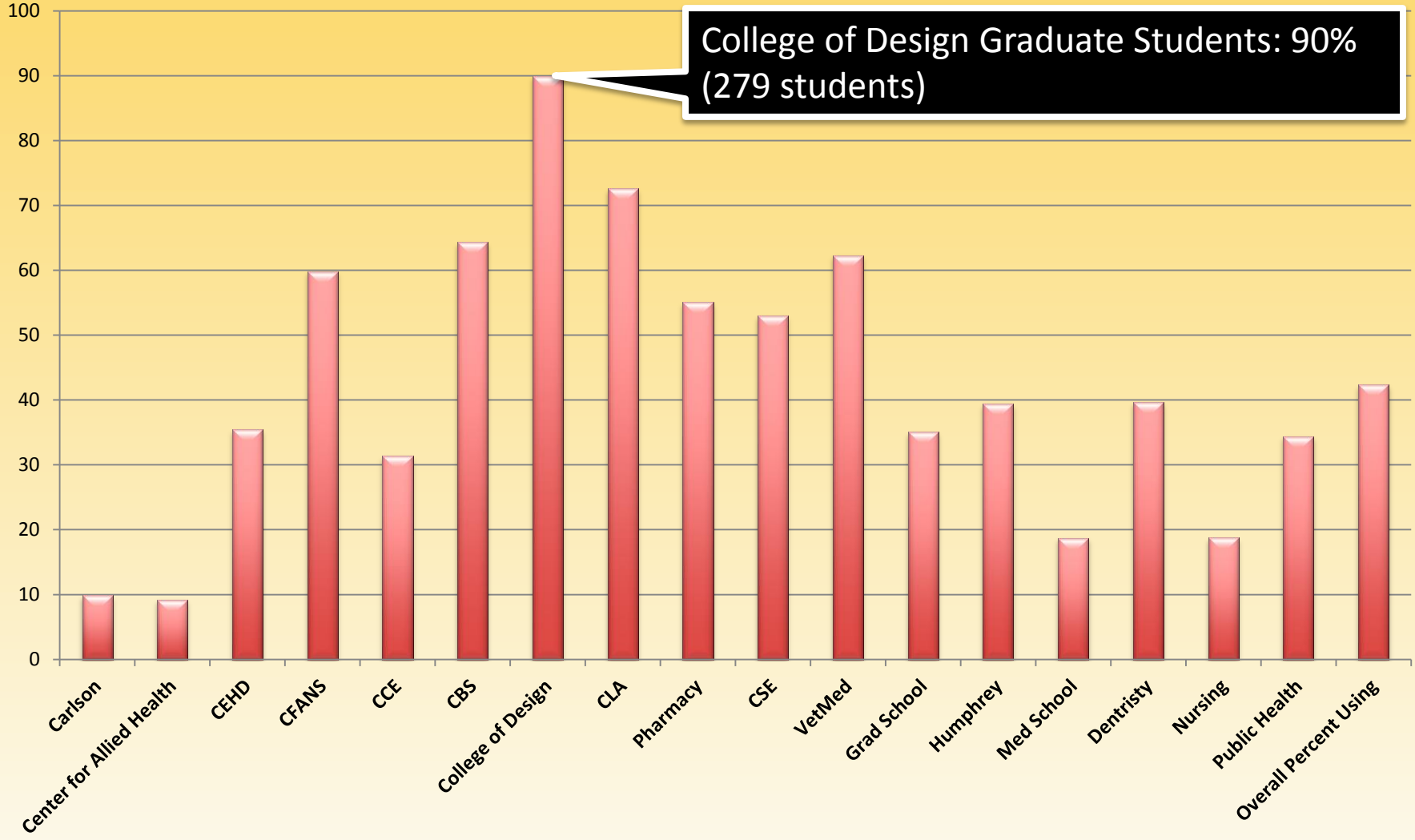
Percent of Grad Students Using Library



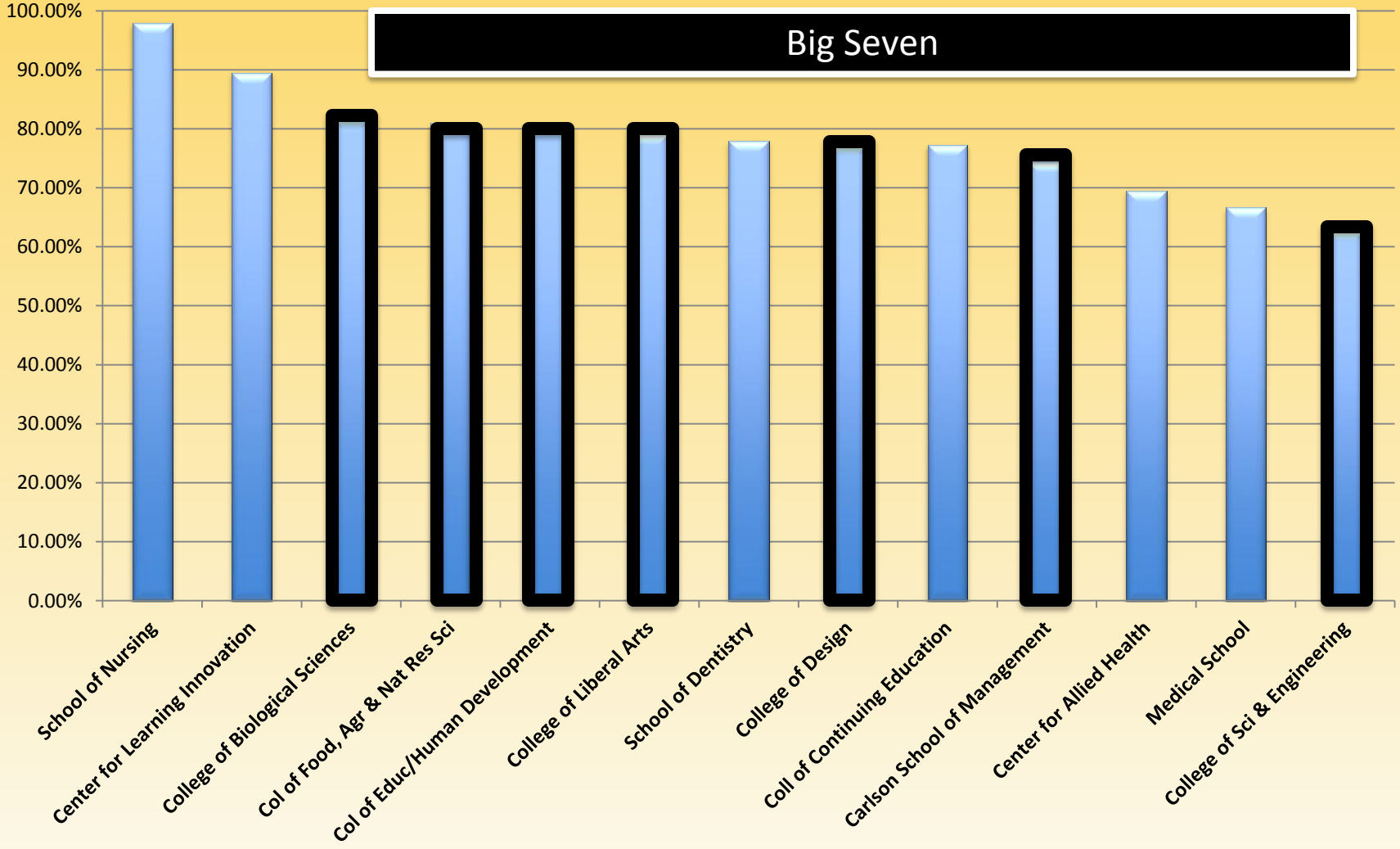
Digital
Graduate Student Use



Circulation
Graduate Student Use



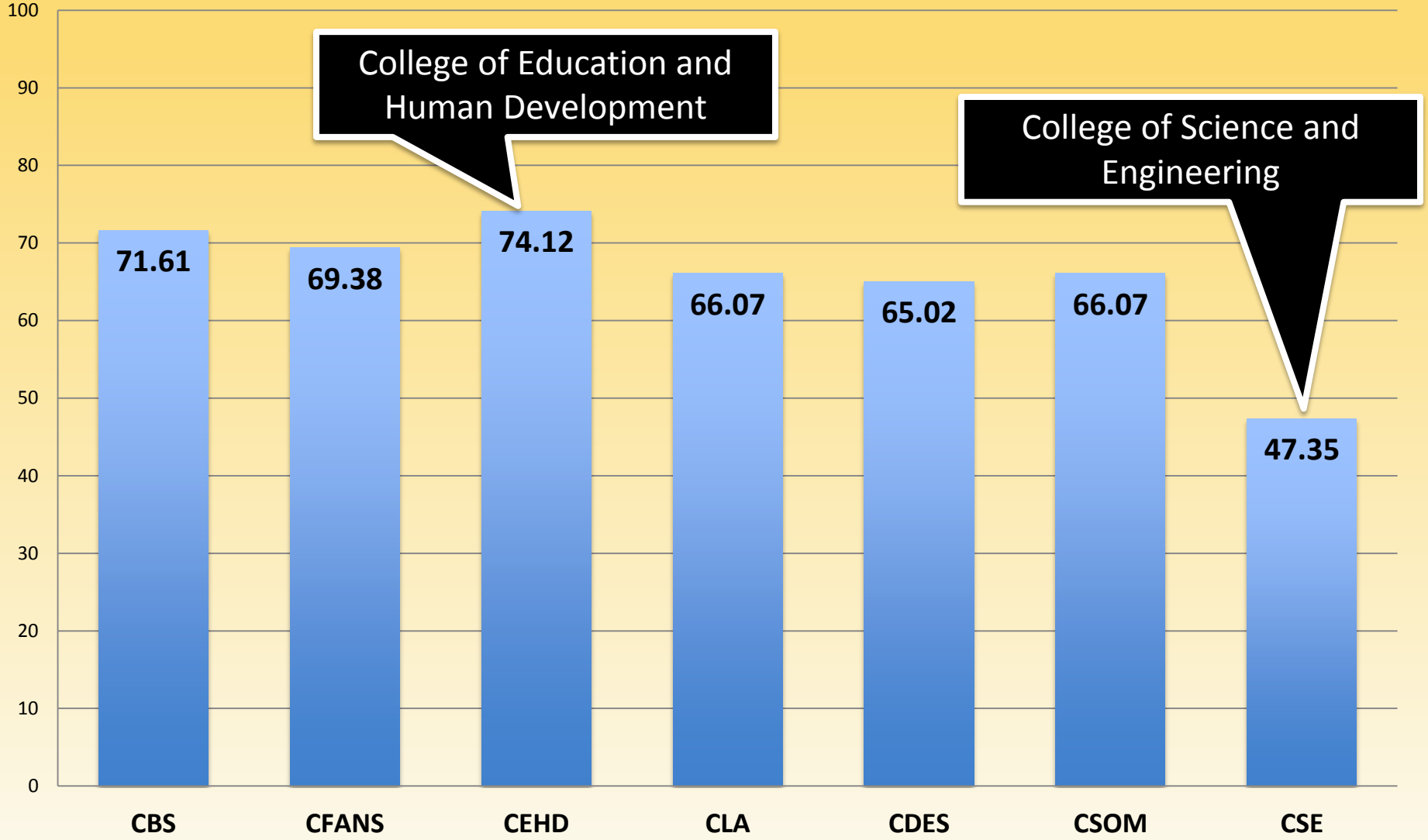
Percent of Undergrads Using Library



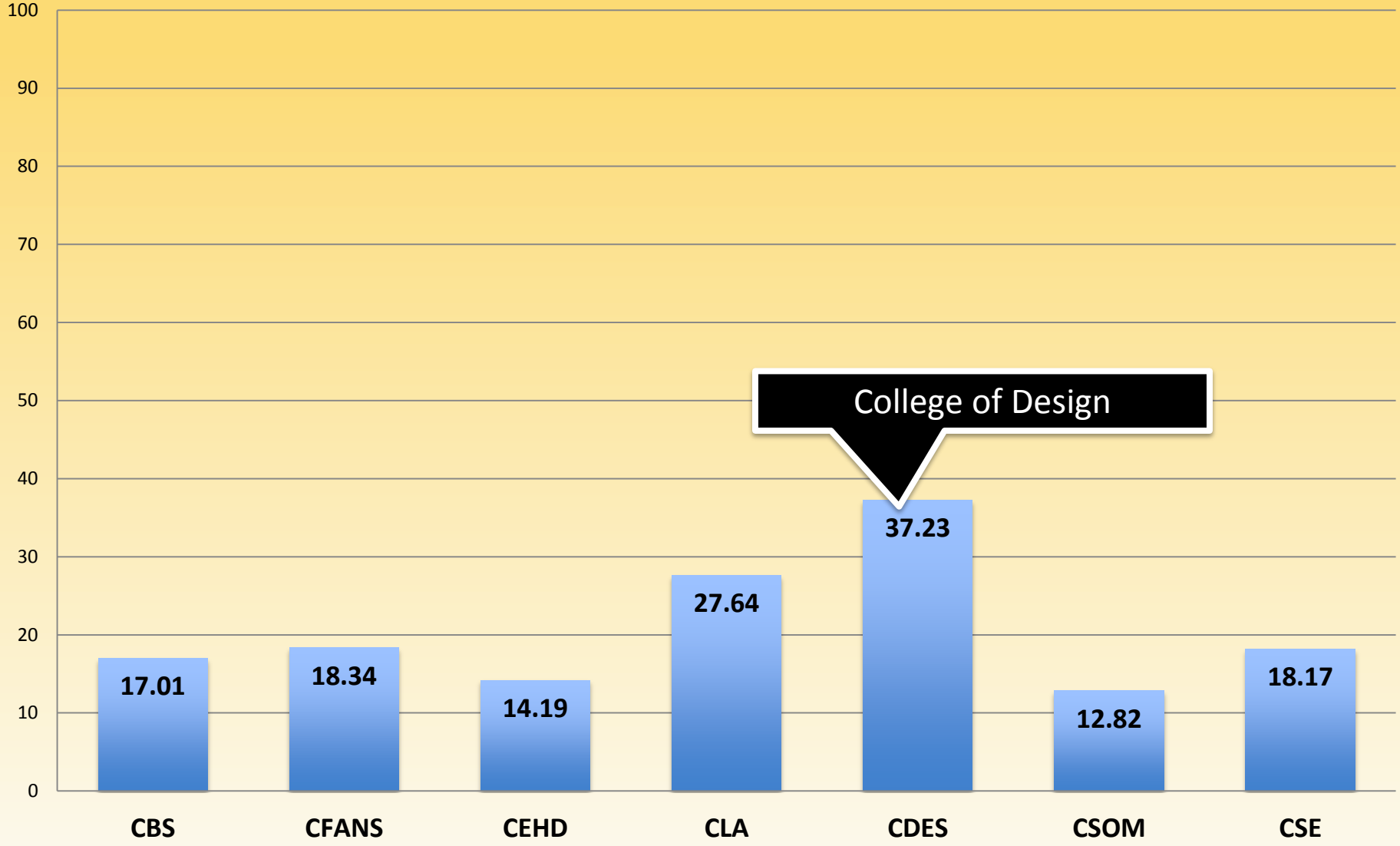
Colleges at the U of M - TC

- The Big Seven
  - CBS: Biological Sciences
  - CFANS: Food, Agricultural, Natural Resource Sciences
  - CEHD: Education and Human Development
  - CLA: Liberal Arts
  - CDES: Design
  - CSOM: Management
  - CSE: Science and Engineering

Undergrad Digital Usage



Undergrad Circulation Usage



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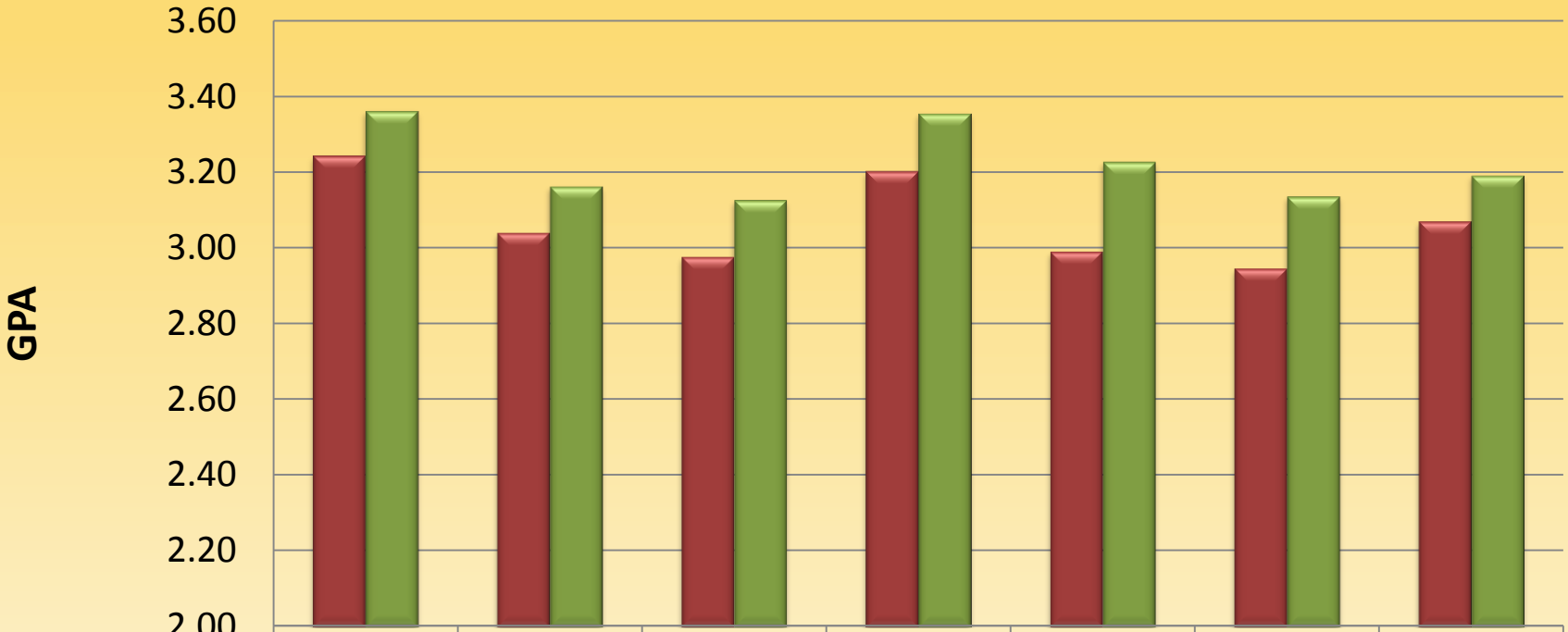
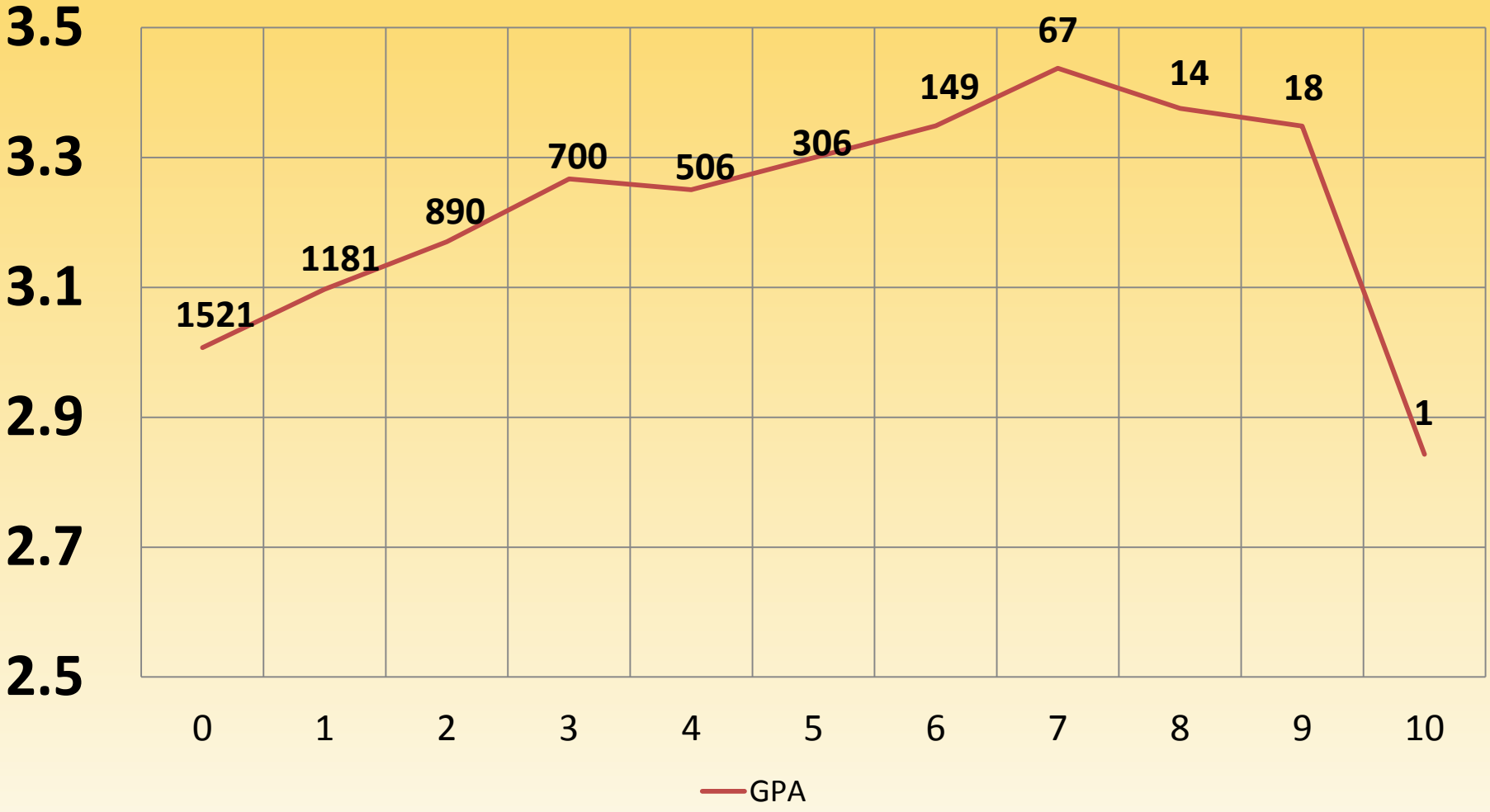
Undergrad Cumulative GPA as of Fall 2011

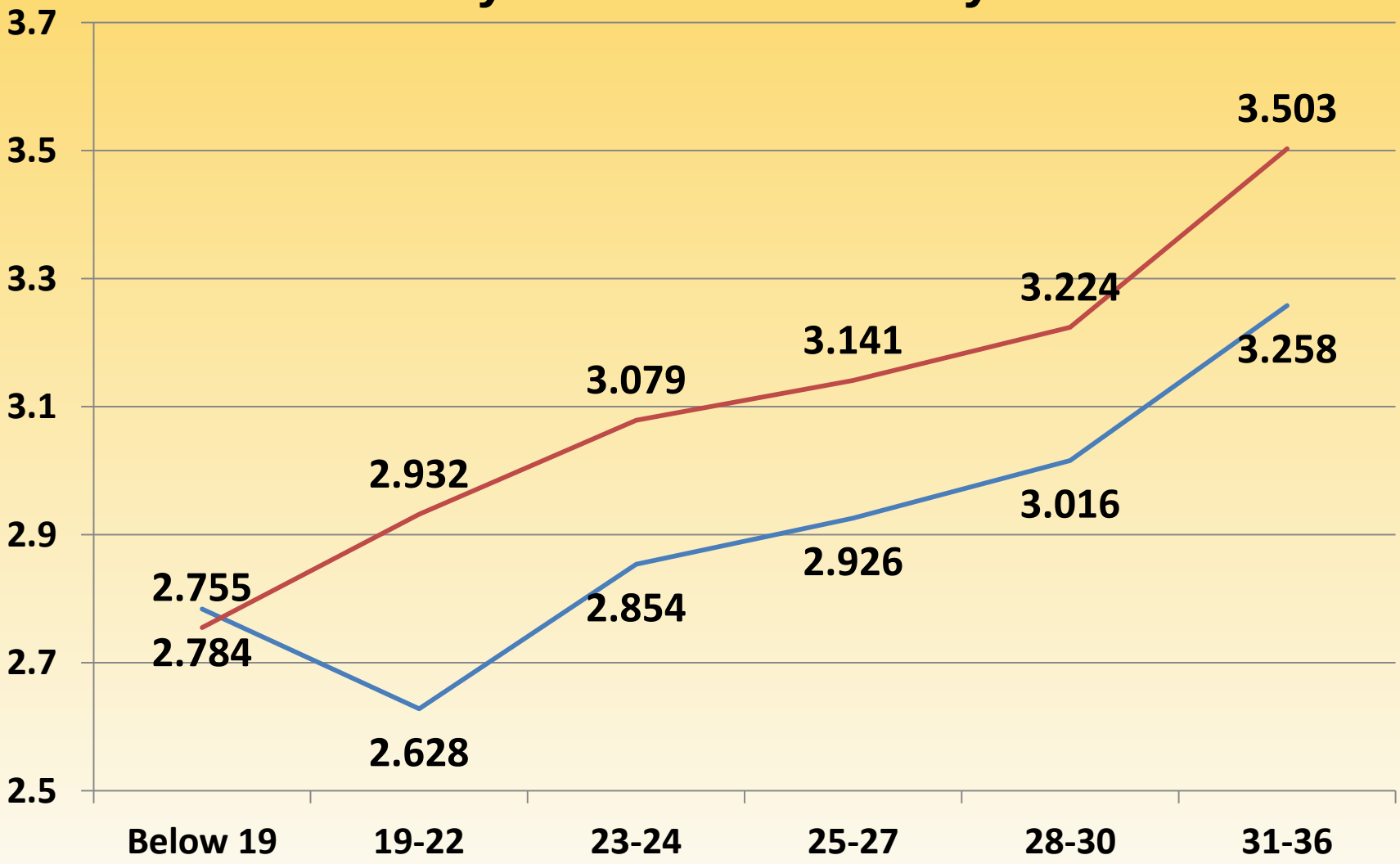


	Carlson School of Management	Col of Educ/Human Development	Col of Food, Agr & Nat Res Sci	College of Biological Sciences	College of Design	College of Liberal Arts	College of Sci & Engineering
No Library Use	3.24	3.04	2.98	3.20	2.99	2.95	3.07
Library Use	3.36	3.16	3.13	3.36	3.23	3.14	3.19

GPA and Number of Types of Library Use



ACT, Library Use, and GPA
Library use vs. Non-library use



FIRST YEAR UNDERGRADS

Inferential Analyses

- First-year students (non-transfer, *n* = 5,368)

- Many ways to slice the data:
  - Any use of the library
  - Type of library use
  - Frequency within type of library use
  - Frequency of total use

Methods: Measures

Use of library (71.3%)

- Database
- E-books
- Book loans
- E-journals
- Inter-library loans
- Intro to Libraries (part 1 & part 2)
- Peer references
- Reference librarians
- Websites
- Workshops
- Workstations
- Course-integrated instruction

Methods: Measures

- Demographics:
  - Gender (M = 47.8%)
  - Race/ethnicity (SOC= 18.4%)
  - Pell grant (22.3%)
  - Veteran status (.6%)
  - First-generation (25.9%)
- Prior academics
  - ACT/SAT scores (M = 27.49)
  - AP credits (n = 3137, M = 8.73)
- College environment:
  - Freshmen seminar (27.8%)
  - Access to Success program (8.8%)
  - Dorm (85.2%)

Analyses

- Ordinary least squares regressions
  - Fall cumulative grade point average
  - Spring cumulative grade point average
  - Academic engagement (SERU survey)
  - Scholarship (SERU survey)
- Logistic regressions
  - Retention from fall to spring semesters
  - Retention from first year to second year

Fall GPA Results

- Controlling for demographics, college environment, and academic variables:
  - Using the library one time was associated with a **.23 increase in students' GPA** holding other factors constant
  - A one-unit increase in *types of use* was associated with a **.07 increase in GPA**

Additional Fall GPA Results

- Controlling for the same variables, we examined using different types of sources at least once (dummy-coded):
  - Course integrated instruction: -.11
  - Database .14
  - E-journal .10
  - Loan .11

Additional Fall GPA Results

- Controlling for the same variables, we examined using different types of sources by frequency (a one-unit increase is associated with…):
  - Course integrated instruction: -.08
  - Database: .01
  - E-Journal: .004
  - Workstation: .006
  - Reference: .08

*note: 12 outliers removed

Additional GPA Results – E-Journals

- Controlling for the same variables, we binned e-journal frequency for variables:
  - E-Journal 1-5: .17
  - E-Journal 6-10: .21
  - E-Journal 11-15: .23
  - E-Journal 16-20: .30 ← Sweet spot?
  - E-Journal 21-25: .31
  - E-journal over 25: .32

Spring GPA Results

- Controlling for demographics, college environment, and academic variables (*including college of enrollment*):
  - Using the library one time was associated with a **.17 increase in students' GPA** holding other factors constant

Additional Spring GPA Results

- Controlling for the same variables, we examined using different types of sources by frequency (a one-unit increase is associated with…):
  - Course integrated instruction: -.08
  - Intro to Libraries part one (-.076) and part two (.098)
  - Database: .005
  - E-Journal: .005
  - Workstation: .004
  - Book loans: .006

*note: 12 outliers removed

Fall Retention Results

- Controlling for the same variables, we examined retention:
  - Students who used the library at least once were **1.54 times more likely to re-enroll**
  - For every one-unit increase in the types of library use, students were **1.1 times more likely to re-enroll**

Additional Fall Retention Results

- Controlling for the same variables, we examined retention:
  - Students who had “Intro to Libraries 2” library instruction were **7.58 times more likely to re-enroll**
  - A one-unit increase in database uses was associated with students being **1.03 times more likely to re-enroll**

Spring Retention Results

- Controlling for the same variables, we examined retention from first year to second year:
  - Students who used the library at least once (increased to 82.2% of students) were **2.08 times more likely to re-enroll** the following year

Academic Engagement (SERU survey)

- Contributed to a class discussion
- Talked with an instructor outside of class about issues/concepts from course
- Had a class in which the instructor knew or learned name
- Asked insightful questions in class
- Brought up different ideas from different courses during class discussions
- Interacted with faculty during lectures
- ($\alpha = .80$)

Academic Engagement

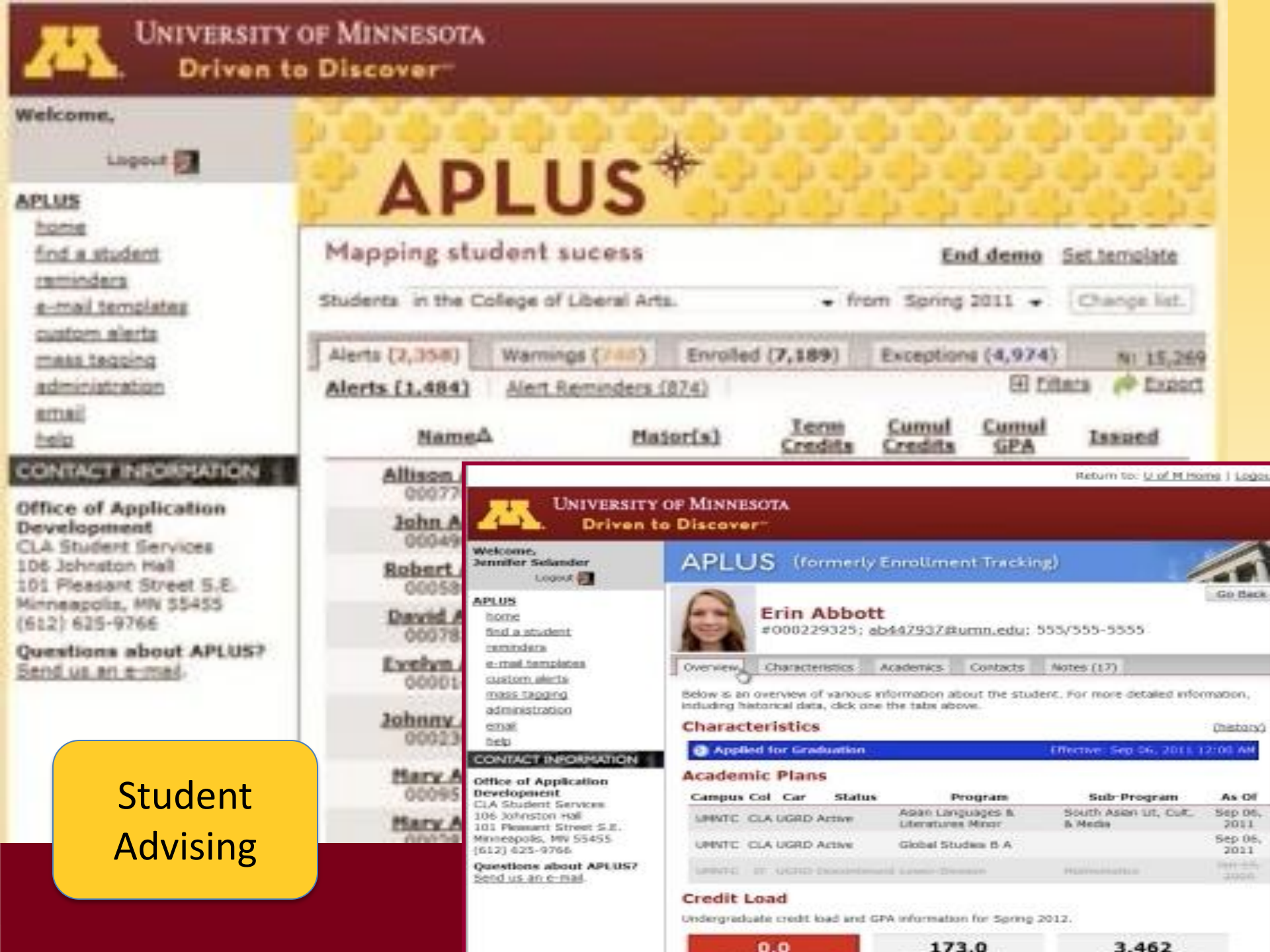
- Controls: demographics, college experience (same as above for GPA/retention), in addition to classmate interactions, library research skills, and critical thinking skills (three factors)
- n = 1,322 FY students
- Using the library at least once is **significantly and positively associated with students' academic engagement** ($p < .05$)

Scholarship (SERU survey)

- Examined how others gathered/interpreted data and assessed soundness of conclusions
- Reconsidered your own position on a topic after assessing the arguments of others
- Incorporated ideas/concepts from different courses when completing assignments
- Used facts/examples to support your viewpoint
- ($\alpha = .85$)

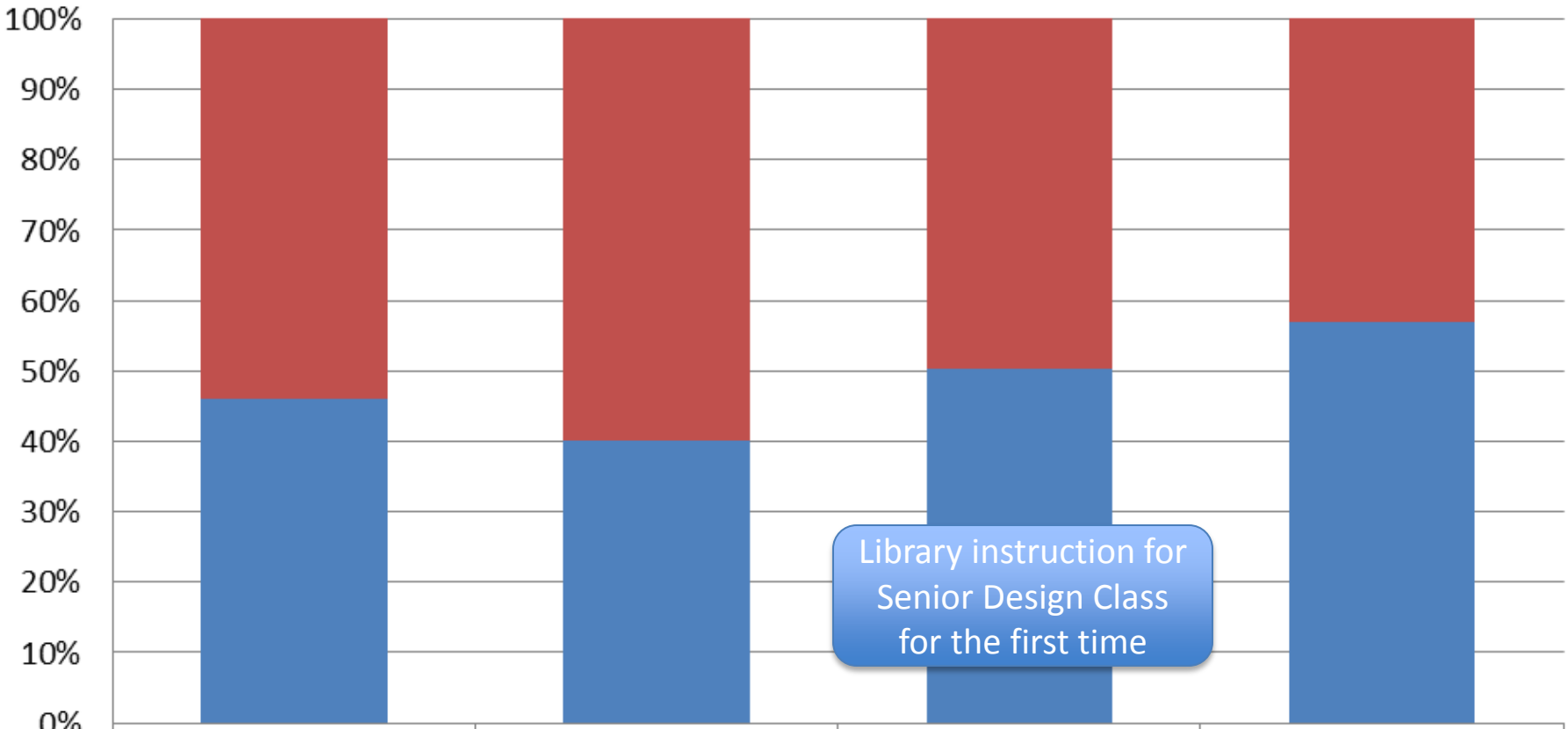
Scholarship

- Controls: demographics, college experience (same as above for GPA/retention), in addition to classmate interactions, library research skills, and critical thinking skills (three factors)
- *n* = 1,322 FY students
- Using the library at least once is **significantly and positively associated with students' scholarship** (*p* < .01)



Student Advising

Aerospace Engineering Undergrads
Percent using the library



	Fall 2011	Spring 2012	Fall 2012	Spring 2013
No	73	103	71	73
Yes	62	69	72	97

Predictions for the Alma Era

- We're moving to Primo+Primo Central in December
- We predict Database numbers will decrease but journal use will increase
- We further predict that we'll need Spring semester to figure out how to count everything we've been counting

Questions?

Contact information

- Jan Fransen (fransen@umn.edu)
- Shane Nackerud (snackeru@umn.edu)

http://blog.lib.umn.edu/ldss/

Resources

- ACRL Value of Academic Libraries: An initiative from the Association of College and Research Libraries, a division of the American Library Association. http://www.acrl.ala.org/value/.
- Haddow, G., & Joseph, J. (2010). Loans, logins, and lasting the course: Academic library use and student retention. *Australian Academic & Research Libraries*, *41*(4), 233–244.
- Huesman, Jr., R. L., Brown, A. K., Lee, G., Kellogg, J. P., & Radcliffe, P. M. (2009). Gym Bags and Mortarboards: Is Use of Campus Recreation Facilities Related to Student Success? *NASPA Journal*, *46*(1), 50–71.
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- Kuh, G. D., & Gonyea, R. M. (2003). The Role of the Academic Library in Promoting Student Engagement in Learning. *College & Research Libraries*, *64*(4), 256–282.
- Stone, G., Pattern, D., & Ramsden, B. (2011). Does library use affect student attainment? A preliminary report on the Library Impact Data Project. Retrieved from http://eprints.hud.ac.uk/10208/.
- Wong, S. H. R., & Webb, T. D. (2011). Uncovering Meaningful Correlation Between Student Academic Performance and Library Material Usage. *College & Research Libraries*, *72*(4), 361–370.