

Understanding Data Literacy Requirements for Assignments: A Business School Syllabus Study

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Background

BAD DATA



Image Source: Graham Steele (2016) Retrieved from: <http://www.flickr.com/photos/steelgraham/30211560464/>

What is data literacy?

Data Literacy is related to the consumption of data. It is “understanding what data mean, including how to read charts appropriately, draw correct conclusions from data and recognize when data are being used in misleading or inappropriate ways.”

Why is data literacy important?

- In several recent surveys, employers indicate that they want analytical skills from business school graduates.
- They want graduates who can:
 - gather data
 - analyze data
 - make decisions with data
- Recent graduates are not prepared to:
 - solve/analyze complex problems
 - work with numbers and statistics
- Why?
 - The required statistics course in business school does not focus on these skills. Instead it focuses on statistical analysis of data, such as hypothesis testing, chi-square tests, and regression analysis.



Background: Eastern Michigan University (EMU) – College of Business



Image Source: Burdette, Dwight. Gary M. Owen College of Business Building, Eastern Michigan University
https://commons.wikimedia.org/wiki/File:Gary_M._Owen_College_of_Business_Building.JPG

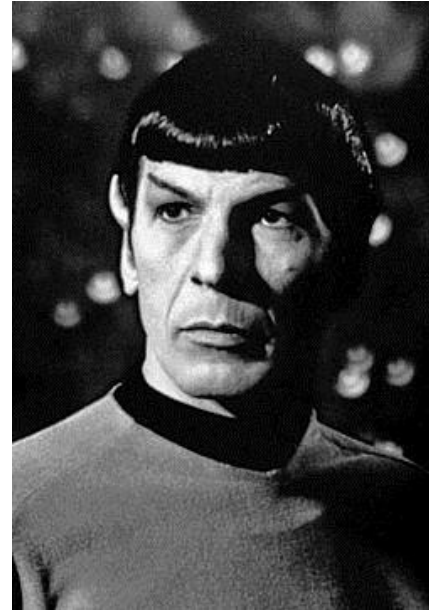
Here I come to
save the day!



Image Source: Terrytowns Studio. Public Domain. Late 1950's/1960's depiction of Mighty Mouse used in the opening of TV prints of some cartoons.
Retrieved from: https://en.wikipedia.org/wiki/Mighty_Mouse#/media/File:Superraton.jpg

Why do a syllabus study?

- It's cheap
- It can be done quickly
- Syllabi are a matter of public record at a public university
- It allows you to target faculty with data-related assignments that related to their courses rather than sending out blanket emails
- It's fascinating



How to do a syllabus study

- Define your research questions
- Plan project scope
- Collect the syllabi
- Create or utilize a scoring framework
- Read the syllabi
- Assign scores to the syllabi
- Record the data
- Analyze, summarize, and distribute the data
- Flag classes for follow up



Image Source: Olympic Stadium, 6 August 2012, London Olympic Games, Women's 1,500 metres heats London 2012

https://commons.wikimedia.org/wiki/File:Women%27s_1500_m_heats_London_2012.jpg

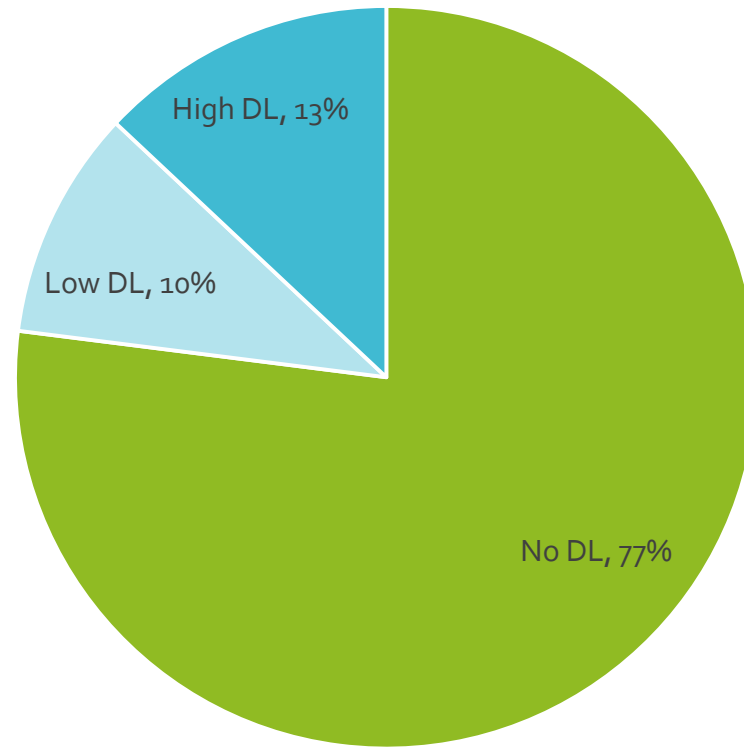
Source: McGowan, B. Gonzalez, M. and Stanny, C. J. (2016: July) What do undergraduate course syllabi say about information literacy? Portal: Libraries and the Academy, (16) 3: 599-617. DOI: 10.1353/pla.2016.0040

Data Literacy Competencies Framework: Calzada Prado & Marzal

Level	Explanation
0	No need for DL
1	Understanding what data is, and how it affects society (Student is given data to work with)
2	Finding or obtaining data (Student must search for data)
3	Reading, interpreting and evaluating data (Student must search for data & incorporate it into a report)
4/5	Managing data, Using data (including ethical uses) (Student must create a major research paper utilizing and manipulating data and/or creating primary research data)

Findings: Data Literacy

Data Literacy is needed in 23% of class assignments

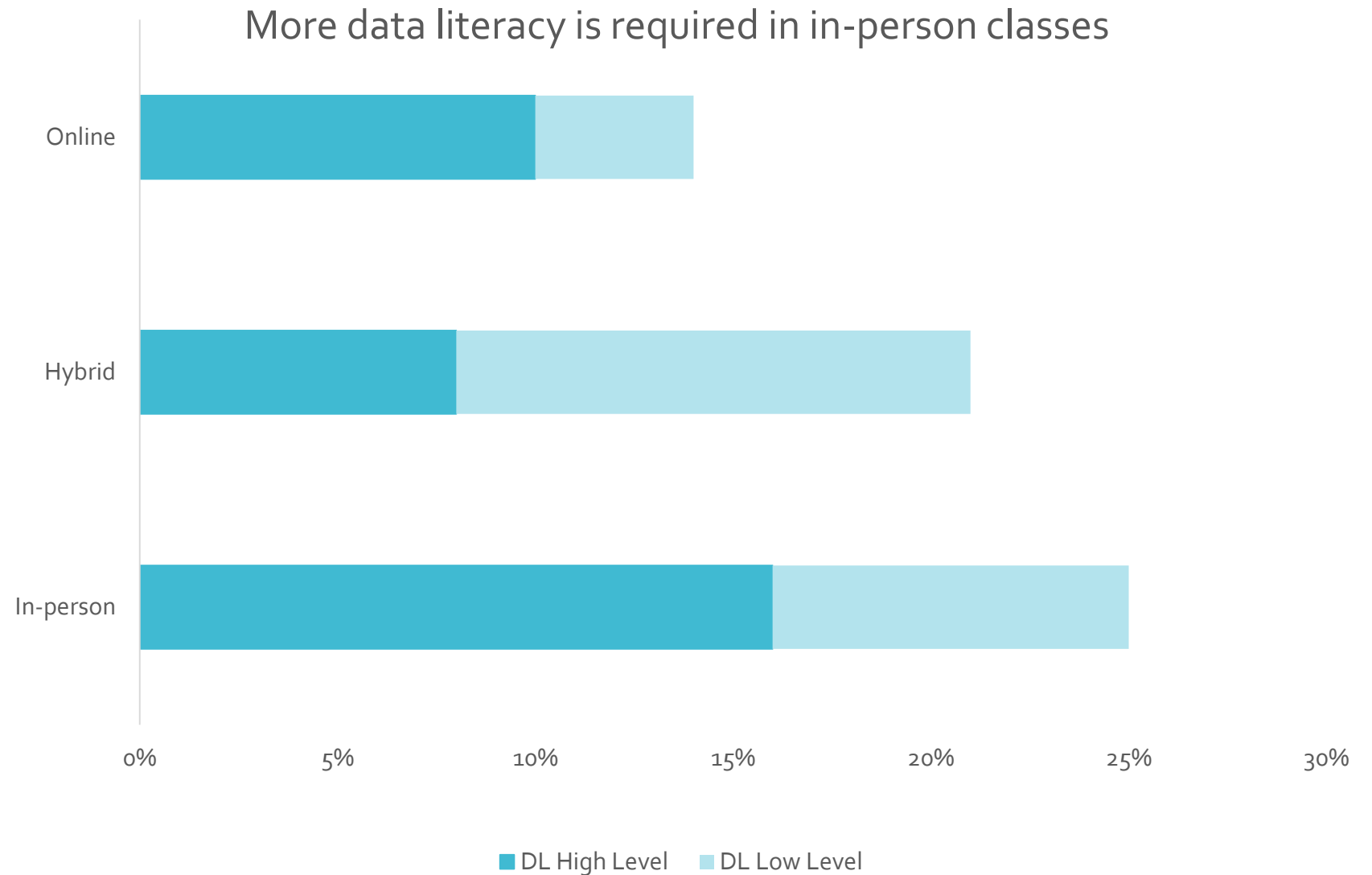


■ No Data Literacy ■ Low Level Data Literacy ■ High Level Data Literacy

Findings: DL

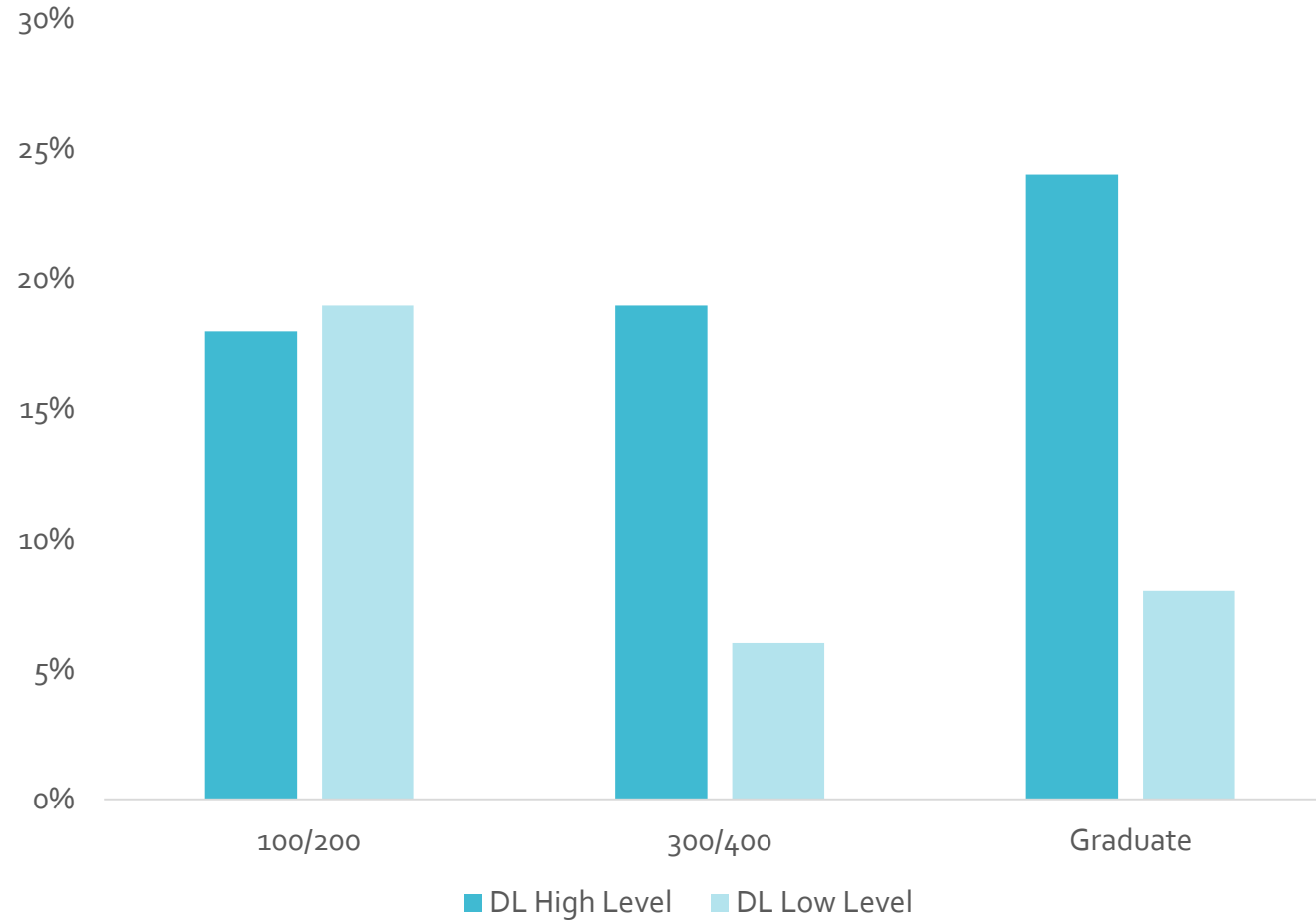
College of Business Discipline	Number of syllabi	% Low level DL (Levels 1+2)	% High DL (Levels 3 + 4/5)	% No DL
Management	61	5% (3)	3% (2)	92% (56)
Marketing	21	14% (3)	24% (6)	57% (12)
Finance/ Accounting	33	6% (2)	30% (10)	64% (21)
Computer Information Science	26	23% (6)	4% (1)	73% (19)
Total	141	10% (14)	13% (19)	77% (108)

Hypothesis #1:
Data use in
online and
hybrid class
assignments is
greater than for
in-person class
assignments



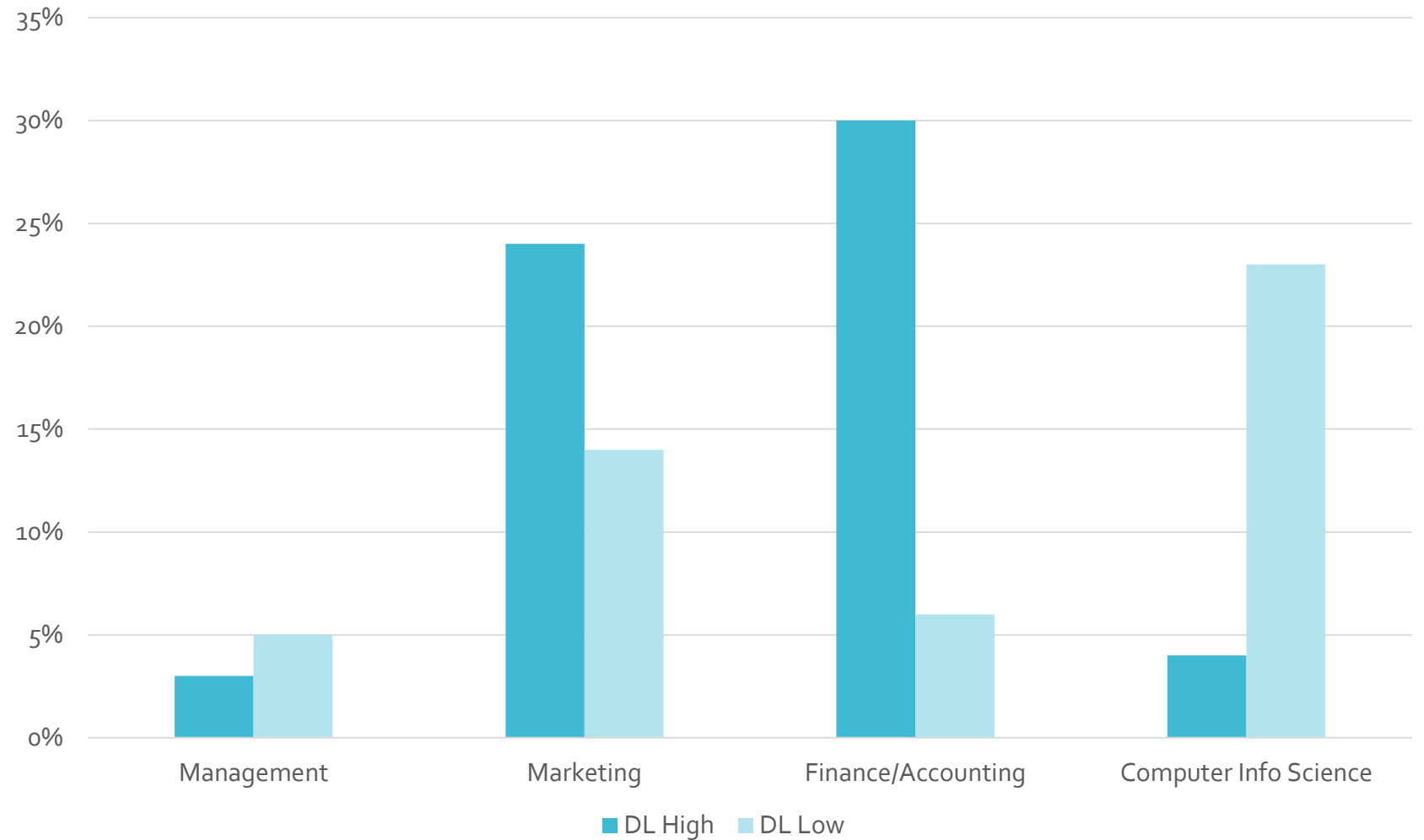
Hypothesis #2:
Graduate students have greater data requirements than undergraduate students

Graduate students have greater data needs



Hypothesis #3:
Different
business school
disciplines have
different data
needs (i.e.,
marketing has
more,
accounting has
less)

Data literacy intensities by discipline



Study Limitations

- One semester, One school
 - This is a very small sample,
 - Your results may vary
- < 100% participation
- Doesn't capture what was said in class



Image Source: By Shrout, Bill. (NARA record: 8464472) (U.S. National Archives and Records Administration) [Public domain], via Wikimedia Commons

Retrieved from:

https://commons.wikimedia.org/wiki/File:EPA_GULF_BREEZE_LABORATORY,_FISHERY_BIOLOGIST_CONDUCTS_STUDIES_OF_SHRIMP_AND_CRAB_LARVAE.jpg

Conclusions

- DL is required in all disciplines, though most of all in Marketing
- A syllabus study is a great way to identify opportunities for course-related instruction
 - A faster way to determine instructional needs
 - Allows me to improve outreach to online classes, classes on another campus
- Charting the needs as high-level and low-level allows tiered instruction, which allows for scaling
 - Low level needs can be addressed with online tutorials, or recorded instruction
 - High level needs can be addressed with in-class teaching
- I was able to find Key assignments to address in Library Guides
 - Business Plans – 9 classes
 - Country Report – 3 classes
 - Case Analysis – 15 classes

Next Steps

- Share results with College of Business
- Propose initial collaboration with faculty who have business plan assignments
- Develop self-paced tutorials for low level data instruction
 - Example: **How to Read a Chart tutorial**
 - http://www.emich.edu/library/help/readChart/story_html5.html

Questions?

I'd be happy to talk about syllabus studies or data literacy:

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