

Data Information Literacy Competencies (Calzada Prado and Marzal 2013) Mapped to AACSB Accreditation Standard 9 (2013)

Macy, K. V. & Coates, H. L. (2016). Data information literacy instruction in business and public health: Comparative case studies. *International Federation of Library Associations Journal*, 42(3).

AACSB Accreditation Standard 9: Curriculum Content - Bachelor's Degree Programs and Higher			
DIL Competency (Calzada Prado and Marzal 2013)	Primary standard	Secondary Standards	
1. Understanding data			
1.1 What is data	Information technology and statistics/quantitative methods impacts on business practices to include data creation, data sharing, data analytics, data mining, data reporting, and storage between and across organization including related ethical issues.		
1.2 Data in society: a tool for knowledge and innovation	Information technology and statistics/quantitative methods impacts on business practices to include data creation, data sharing, data analytics, data mining, data reporting, and storage between and across organization including related ethical issues.	Economic, political, regulatory, legal, technological, and social Contexts of organizations in a global society.	
2. Finding and/or Obtaining Data			
2.1 Data sources	Information technology and statistics/quantitative methods impacts on business practices to include data creation, data sharing, data analytics, data mining, data reporting, and storage between and across organization including related ethical issues.		
2.2 Obtaining data	Information technology and statistics/quantitative methods impacts on business practices to include data creation, data sharing, data analytics, data mining, data reporting, and storage between and across organization including related ethical issues.	Analytical thinking (able to analyze and frame problems).	
3. Reading, interpreting and evaluating data			
3.1 Reading and interpreting data	Information technology and statistics/quantitative methods impacts on business practices to include data creation, data sharing, data analytics, data mining, data reporting, and storage between and across organization including related ethical issues.	Analytical thinking (able to analyze and frame problems).	
3.2 Evaluating data	Information technology and statistics/quantitative methods impacts on business practices to include data creation, data sharing, data analytics, data mining, data reporting, and storage between and across organization including related ethical issues.	Analytical thinking (able to analyze and frame problems).	
4. Managing data			
4.1 Data and metadata collection and management	Information technology and statistics/quantitative methods impacts on business practices to include data creation, data sharing, data analytics, data mining, data reporting, and storage between and across organization including related ethical issues.	Social responsibility, including sustainability, and ethical behavior and approaches to management.	
5. Using data			
5.1 Data handling	Information technology and statistics/quantitative methods impacts on business practices to include data creation, data sharing, data analytics, data mining, data reporting, and storage between and across organization including related ethical issues.		
5.2 Producing elements for data synthesis	Information technology and statistics/quantitative methods impacts on business practices to include data creation, data sharing, data analytics, data mining, data reporting, and storage between and across organization including related ethical issues.	Written and oral communication (able to communicate effectively orally and in writing).	
5.3 Ethical use of data	Information technology and statistics/quantitative methods impacts on business practices to include data creation, data sharing, data analytics, data mining, data reporting, and storage between and across organization including related ethical issues.	Social responsibility, including sustainability, and ethical behavior and approaches to management.	Ethical understanding and reasoning (able to identify ethical issues and address the issues in a socially responsible manner).

Sources:

Association to Advance Collegiate Schools of Business (2013) Eligibility procedures and accreditation standards for business accreditation. Available at: <http://www.aacsb.edu/accreditation/standards> (accessed 9 March 2016).

Calzada Prado, J and Marzal, MÁ (2013) Incorporating data literacy into information literacy programs: core competencies and contents. *Libri: International Journal of Libraries & Information Services* 63(2): 123–134.



Data Information Literacy Competencies (Calzada Prado and Marzal 2013) Mapped to National Business Educators Association Standards for Business Education (2013)

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Level 4 Competency = undergraduate education

DIL Competency (Calzada Prado and Marzal 2013)			National Standard for Business Education - by subject area - Level 4 Competency				
Competency	Contents	Accounting	Communications	Information Technology	Management	Marketing	
1. Understanding data							
1.1 What is data	Learners need to know what is meant by data and be aware of the various possible types of data.	Data definition; Types of data (depending on origin, format, usage license, and so on.)					
1.2 Data in society: a tool for knowledge and innovation	Learners need to be aware of the role of data in society, how are they generated and by whom, and their possible applications, as well as the implications of their use.	Data producers and consumers; Data lifecycle; Data applications: their impact on science and society; Copyright and licenses influencing data reuse.			III. Digital Citizenship: -Recognize the importance of your digital footprint and manage it professionally. -Recognize responsible use of digital commerce.	I. Foundations of Marketing: -Describe the marketing opportunities and threats created by changing technology. III. External Factors D. Competitive Environment: -Assess the role of technology in enabling companies to compete effectively.	
2. Finding and/or Obtaining Data							
2.1 Data sources	Learners need to be aware of the possible data sources, be able to evaluate them and select the ones most relevant to an informational need or a given problem.	Data sources; Criteria for assessing data sources.			X. Data Management Systems: -Use data mining techniques to extract useful information.	III. External Factors B. Ethical Issues: -Analyze methods used by marketers to obtain and use personal information. IV. The Marketing Mix D. Promotion 4. Personal Selling: -Assess how companies use data mining to identify new customers.	



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	Competency	Contents	Accounting	Communications	Information Technology	Management	Marketing
2.2 Obtaining data	Learners need to be able to detect when a given problem or need cannot be (totally or partially) solved with the existing data and, as appropriate, undertake research to obtain new data.	Main research methods for obtaining original data.			X. Data Management Systems: -Use data mining techniques to extract useful information.		III. External Factors B. Ethical Issues: -Analyze methods used by marketers to obtain and use personal information. IV. The Marketing Mix D. Promotion 4. Personal Selling: -Assess how companies use data mining to identify new customers. VI. Marketing Research: -Evaluate the steps involved in interpreting survey data, including collecting, analyzing, and reporting key findings.



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Competency	Contents	Accounting	Communications	Information Technology	Management	Marketing	
3. Reading, interpreting and evaluating data							
3.1 Reading and interpreting data	Learners need to be aware of the various forms in which data can be presented (written, numerical or graphic), and their respective conventions, and be able to interpret them.	Ways to present and represent data.	I. The Accounting Profession: -Apply analytical and critical-decision making skills.	I. Foundations of Communication C. Reading and research: -Analyze and synthesize information from a variety of sources.		IX. Industry Analysis C. Internal and External Sources of Data: -Analyze the value of various sources of industry information.	VI. Marketing Research: -Evaluate the steps involved in interpreting survey data, including collecting, analyzing, and reporting key findings.
3.2 Evaluating data	Learners need to be able to evaluate data critically.	Data evaluation criteria (including authorship, method of obtaining and analyzing data, comparability, inference and data summaries).	I. The Accounting Profession: -Apply analytical and critical-decision making skills.	I. Foundations of Communication C. Reading and research: -Analyze and synthesize information from a variety of sources.		IX. Industry Analysis C. Internal and External Sources of Data: -Analyze the value of various sources of industry information. -Evaluate the reliability of internal and external data sources.	VI. Marketing Research: -Evaluate the steps involved in interpreting survey data, including collecting, analyzing, and reporting key findings.
4. Managing data							
4.1 Data and metadata collection and	Learners need to be aware of the need to save the data selected or generated and of descriptive or other data associated therewith, for due identification, management and subsequent reuse.	Metadata, reference management tools, databases, data management repositories, policies and practices.	VI. Interpretation and use of data A. Planning and control: -Identify and apply internal control procedures used to safeguard assets and ensure the integrity of the accounting information system.			VIII. Technology and Information A. Technology and Tools: -Evaluate methods for protecting information. VIII. Technology and Information B. Information Management: -Identify methods organizations use to collect and manage information.	VI. Marketing Research: -Evaluate the steps involved in interpreting survey data, including collecting, analyzing, and reporting key findings.

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Competency	Contents	Accounting	Communications	Information Technology	Management	Marketing	
5. Using data							
5.1 Data handling	Learners need to be able to prepare data for analysis, analyze them in keeping with results sought and know how to use the necessary tools.	Data conversion; Handling data analysis tools, both locally (Excel, R, SPSS, Stata or similar) and on-line.	I. The Accounting Profession: -Apply analytical and critical-decision making skills.	I. Foundations of Communication C. Reading and research: -Analyze and synthesize information from a variety of sources.	II. Information Literacy: -Analyze and use mathematical and/or statistical methods to manipulate data into useful information.	VI. Marketing Research: -Evaluate the steps involved in interpreting survey data, including collecting, analyzing, and reporting key findings.	
5.2 Producing elements for data synthesis	Learners need to be able to synthesize and represent the results of data analysis in ways suited to the nature of the data, their purpose and audience targeted in the inquiry.	Choosing suitable data representation methods (tables, graphs or similar); Handling tools (built into analytical tools or stand-alone applications such as Gapminder, Visual.ly or IBM's Many Eyes).	I. The Accounting Profession: -Apply analytical and critical-decision making skills.	I. Foundations of Communication C. Reading and Research: -Analyze and synthesize information from a variety of sources. III. Written Communication B. Business Messages: -Prepare industry-specific technical reports integrating graphics.	II. Information Literacy: -Synthesize information from data sources to formulate decisions across the curriculum. -Present analyzed information in a meaningful format.	VI. Marketing Research: -Evaluate the steps involved in interpreting survey data, including collecting, analyzing, and reporting key findings.	
5.3 Ethical use of data	Learners need to make ethical use of data, acknowledging the source when obtained or formulated by others, and making sure what used methods are deployed and results interpreted transparently and honestly.	What is the ethical use of data; How to cite data sources.	I. The Accounting Profession: -Apply analytical and critical-decision making skills.	I. Foundations of Communication C. Reading and Research: -Critique the impact of misinformation on decision making and problem solving. -Assess the ethical implications of misinformation. III. Written Communication A. Mechanics and Writing Basics: -Analyze the ethical implications of written messages containing misleading, distorted, and missing information.	III. Digital citizenship: -Recognize the importance of your digital footprint and manage it professionally. -Recognize responsible use of digital commerce. -Implement organization policies and procedures dealing with legal and ethical issues. -Analyze legal and ethical dilemmas within the framework of current laws and legislation (e.g. virus development, hacking, threats, phishing).	I. Foundations of Marketing: -Describe the marketing opportunities and threats created by changing technology. -Compare and contrast current issues related to customer rights and advocacy. III. External Factors B. Ethical Issues: -Analyze methods used by marketers to obtain and use personal information. III. External Factors D. Competitive environment: -Assess the role of technology in enabling companies to compete effectively.	

Sources:

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National Business Education Association (2013) National standards for business education: What America's students should know and be able to do in business. Reston, VA

National Business Educators Association Standards for Business Education (2013) Mapped to Calzada Prado and Marzal Data Information Literacy Framework (2013)

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Subject/Functional Area	Standard	Achievement Standard	Level 4 Performance Standard	Calzada Prado and Marzal (2013) DIL Alignment
Accounting	I. The Accounting Profession	Demonstrate the skills and competencies required to be successful in the accounting profession and/or in an accounting-related career.	Apply analytical and critical-decision making skills.	3.1 Reading and interpreting data 3.2 Evaluating data 5.1 Data handling 5.2 Producing elements of data synthesis 5.3 Ethical use of data
Accounting	VI. Interpretation and use of data A. Planning and control	Use planning and control principles to evaluate the performance of an organization and apply differential analysis and present-value concepts to make informed business decisions.	Identify and apply internal control procedures used to safeguard assets and ensure the integrity of the accounting information system.	4.1 Data and metadata collection and management
Communication	I. Foundations of communication C. Reading and Research	Listen actively, use the communication process, read and research information, and integrate technology to enhance communication effectiveness.	Analyze and synthesize information from a variety of sources.	3.1 Reading and interpreting data 5.2 Producing elements of data synthesis
Communication	I. Foundations of communication C. Reading and Research	Listen actively, use the communication process, read and research information, and integrate technology to enhance communication effectiveness.	Critique the impact of misinformation on decision making and problem solving.	5.3 Ethical use of data
Communication	I. Foundations of communication C. Reading and Research	Listen actively, use the communication process, read and research information, and integrate technology to enhance communication effectiveness.	Assess the ethical implications of misinformation.	5.3 Ethical use of data
Communication	III. Written Communication A. Mechanics and Writing Basics	Prepare clear, complete, concise, correct, and courteous written messages for personal and professional uses.	Analyze the ethical implications of written messages containing misleading, distorted, and missing information.	5.3 Ethical use of data
Communication	III. Written Communication B. Business Messages	Prepare clear, complete, concise, correct, and courteous written messages for personal and professional uses.	Prepare industry-specific technical reports integrating graphics.	5.2 Producing elements of data synthesis
Information Technology	II. Information Literacy	Gather, evaluate, use, cite, and disseminate information from retrieve information.	Synthesize information from data sources to formulate decisions across the curriculum.	5.2 Producing elements of data synthesis
Information Technology	II. Information Literacy	Gather, evaluate, use, cite, and disseminate information from retrieve information.	Analyze and use mathematical and/or statistical methods to manipulate data into useful information.	5.1 Data handling
Information Technology	II. Information Literacy	Gather, evaluate, use, cite, and disseminate information from retrieve information.	Present analyzed information in a meaningful format.	5.2 Producing elements of data synthesis
Information Technology	III. Digital Citizenship	Demonstrate respectful, responsible, and ethical behavior in the digital worlds.	Recognize the importance of your digital footprint and manage it professionally.	1.2 Data in society 5.3 Ethical use of data
Information Technology	III. Digital Citizenship	Demonstrate respectful, responsible, and ethical behavior in the digital worlds.	Recognize responsible use of digital commerce.	1.2 Data in society 5.3 Ethical use of data
Information Technology	III. Digital Citizenship	Demonstrate respectful, responsible, and ethical behavior in the digital worlds.	Implement organization policies and procedures dealing with legal and ethical issues.	5.3 Ethical use of data
Information Technology	III. Digital Citizenship	Demonstrate respectful, responsible, and ethical behavior in the digital worlds.	Analyze legal and ethical dilemmas within the framework of current laws and legislation (e.g. virus development, hacking, threats, phishing).	5.3 Ethical use of data
Information Technology	X. Data Management Systems	Use, plan, develop, and maintain database management systems.	Use data mining techniques to extract useful information.	2.1 Data sources 2.2 Obtaining data
Management	IX. Industry Analysis C. Internal and External Sources of Data	Analyze a business organization's competitive position within the industry.	Analyze the value of various sources of industry information.	3.1 Reading and interpreting data 3.2 Evaluating data



Subject/Functional Area	Standard	Achievement Standard	Level 4 Performance Standard	Calzada Prado and Marzal (2013) DIL Alignment
Management	IX. Industry Analysis C. Internal and External Sources of Data	Analyze a business organization's competitive position within the industry.	Evaluate the reliability of internal and external data sources.	3.2 Evaluating data
Management	VIII. Technology and Information B. Information Management	Utilize information and technology tools to conduct business effectively and efficiently.	Identify methods organizations use to collect and manage information.	4.1 Data and metadata collection and management
Management	VIII. Technology and Information A. Technology and Tools	Utilize information and technology tools to conduct business effectively and efficiently.	Evaluate methods for protecting information.	4.1 Data and metadata collection and management
Marketing	I. Foundations of Marketing	Recognize the customer-oriented nature of marketing and analyze the impact of marketing activities on the individual, business, and society.	Describe the marketing opportunities and threats created by changing technology.	1.2 Data in society 5.3 Ethical use of data
Marketing	I. Foundations of Marketing	Recognize the customer-oriented nature of marketing and analyze the impact of marketing activities on the individual, business, and society.	Compare and contrast current issues related to customer rights and advocacy.	5.3 Ethical use of data
Marketing	III. External Factors B. Ethical Issues	Analyze the influence of external factors on marketing.	Analyze methods used by marketers to obtain and use personal information.	2.1 Data sources 2.2 Obtaining data 5.3 Ethical use of data
Marketing	III. External Factors D. Competitive Environment	Analyze the influence of external factors on marketing.	Assess the role of technology in enabling companies to compete effectively.	1.2 Data in society 5.3 Ethical use of data
Marketing	IV. The Marketing Mix D. Promotion 4. Personal Selling	Analyze the elements of the marketing mix, their interrelationships, how they are used in the marketing process, and their role in positioning.	Assess how companies use data mining to identify new customers.	2.2 Obtaining data
Marketing	VI. Marketing Research	Analyze the role of marketing research in decision making.	Evaluate the steps involved in interpreting survey data, including collecting, analyzing, and reporting key findings.	2.2 Obtaining data 3.1 Reading and interpreting data 3.2 Evaluating data 4.1 Data and metadata collection and management 5.1 Data handling 5.2 Producing elements for data synthesis

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