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Integrative Learning and Interdisciplinary Information Systems Curriculum Development in Accounting Analytics

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ABSTRACT

This paper develops the structure for an integrative model information systems curriculum on Accounting Analytics, which affords students the opportunities to develop domain knowledge along with application of data analytics. As industry experiences rapid technological change, university curricula must remain current in order to be effective. Curriculum content is further advanced and established with input from industry organizations that employ graduates of the programs. The paper output includes a curriculum review of top accounting programs, course curriculum map, accounting data skills matrix, and professional opportunities. The curriculum review utilizes an empirical text analytics methodological approach to extract patterns and develop additional insights for the advancement of accounting information systems research. To minimize curricular disruption, existing courses can be utilized as core curriculum, enhancing key courses to complete undergraduate, graduate, or certificate programs. The Accounting Analytics customized curriculum provides students an opportunity to take advantage of the growing interdisciplinary field and student interest among accounting and analytical career paths. The integrative curriculum is developed to better prepare graduates with the critical knowledge, skills, and abilities to excel in this new-age workforce.

Keywords: AACSB, Accounting, Business analytics, Careers, Curriculum design & development, Integrative learning

1. INTRODUCTION

Corporate leaders are increasingly adopting accounting analytics tools to drive business decisions, which support budgeting, forecasting, planning, and (now increasingly) revenue generation. Organizations are utilizing data and information to attract new customers, upsell to existing customers, and improve supply chain management. Accountants are well-positioned within an organization to leverage information into actionable business and financial insights; however, in order to achieve this capability, analytical skillsets must be enhanced to prepare for a successful career. The Department of Labor and Employment (DoLE) and the Bureau of Local Employment (BLE) identified data science and analytical skills as one of the ways to future-proof jobs as automation occurs (Shimamo, 2013; Vickrey, 2013; PWC, 2015; Cortez, 2019).

Environmental changes in business, accounting, and information systems require changes in higher education. Many changes include adding analytical and IT skills, such as database design, data analysis, statistics, analytical tools, and visualizations. While other changes have occurred in accounting education over the last 30 years due to financial and technology changes, big data analytics has the potential to create more significant changes than even those previous changes combined. Students require advanced analytical skills in the accounting curriculum (McKinney, Yoos, and Snead, 2015). Analytics skills are critical for accountants, as their positions require providing management with information used in strategic decision making. Accountants may be seen as being on the forefront of analytics for their organizations, and

therefore, analytics competencies are a necessary prerequisite (Kokina, Pachamanova, and Corbett, 2017).

This research develops the structure for an interdisciplinary curriculum in Accounting Analytics, which affords students the opportunities to develop domain knowledge along with application of data analytics. As industry experiences rapid technological change, university curricula are required to be updated in order to be effective. Curriculum contents are further advanced and established with input from industry organizations that employ graduates of the programs.

Despite the corporate requirements for advanced accounting analytics, a literature analysis found that most accounting education articles are non-empirical, relate to similar topics, and omit issues that are important to practice, resulting in minimal impact to practice with an ever widening gap. When empirical methods are used, survey research is prominent, with few studies using experimental methods. Similarly, the accounting curriculum over the past 30 years utilizes similar courses across a standard curriculum, creating an opportunity for research to be focused on career paths for students. Curricular opportunities are possible for integrated accounting and technology coursework which incorporate interdisciplinary perspectives (Rebele and St. Pierre, 2015).

To address prior limitations and advance accounting information systems research, an empirical methodological approach through text analytics is utilized. Text analytics is an unsupervised machine learning approach with unstructured data sets. Unsupervised learning is intended to explore data and uncover hidden structures. Unsupervised learning can also be valuable in segmenting records with similar variable attributes (SAS, 2020). The objective of this study is to explore accounting curriculum and develop opportunities for integrated accounting information systems coursework.

2. LITERATURE REVIEW

2.1 Integrative Curriculum Requirements

There is often a disconnect or misalignment between skillsets that are important to professionals, educators, and accrediting agencies such as The Association to Advance Collegiate Schools of Business (AACSB) (Kearns, 2014; Woodside, 2018a; Woodside, 2019). To address this disconnect or misalignment with accounting and information systems curriculum, Kearns (2014) examined the value of Accounting Information Systems and the relative importance of accounting skillsets and developed three sets: Generic, Functional, and Information Technology skills. Generic skills were most highly rated by respondents, followed by IT skills, and functional skills. Generic skills include communication, teamwork, ethical behavior, critical thinking, and problem solving. Functional skills include traditional accounting skills such as budgeting, tax, financial statements, auditing, and variance. Information technology skills include office productivity software, internal controls, IT security, IT audits, extensible business reporting language (XBRL), enterprise resource planning (ERP), and fraud. Spreadsheet tools were the top rated IT area with more advanced areas scoring lower, reflecting the gap between educators and professionals (Kearns, 2014).

2.2 Accreditation Requirements

Recent developments by AACSB, as exemplified by Standard A5, require learning to develop knowledge and integration of information systems within accounting, with output of data creation, data sharing, data analytics, data mining, data reporting, and data storage within and across organizations. AACSB recommends an integrated, interdisciplinary curriculum that includes statistics, data management, analytics, and big data tools. An institution offering degrees in accounting can apply for AACSB Accounting Accreditation on a voluntary basis. Requirements include being an AACSB International member institution and being an AACSB Business Accredited institution (or apply for both). AACSB Accounting Accreditation follows a similar rigorous self-evaluation and peer-review process. In total, 189 institutions have obtained AACSB Accounting Accreditation (AACSB, 2019a, 2019b; Augustin et al., 2019).

Stefanidis (2014) compared AACSB-accredited information systems programs to Information Systems 2010 model curriculum guidelines developed jointly through the Association for Information Systems (AIS) and Association for Computing Machinery (ACM), which provide guidance regarding curriculum content, electives, and career tracks (Topi, et al., 2010). Core requirements include information systems foundation, data and information management, enterprise architecture, project management, infrastructure, systems analysis and design, and strategy. Findings included varying degrees of model curriculum adherence, driven in part by changing business and skills requirements (Stefanidis, 2014). White (2005) analyzed business information systems courses and similarly found variability in content between courses and programs.

The American Accounting Association (AAA) has also refocused their attention on education, understanding that critical changes are occurring within higher education. The key issues identified include the evolving accounting professoriate, use of learning technology, and accounting curricula innovation (American Accounting Association, 2016). The National Association of State Boards of Accountancy (NASBA) is also looking for feedback to evolve the Certified Public Accountant (CPA) licensure to include the need for new data analytics skills in an era of rapid technological advancement (Tysiac, 2019). The Pathways Commission developed by the American Institute of Certified Public Accountants (AICPA) and the American Accounting Association (AAA) studied accounting education and recommended that learning should be transformed to reflect both current and emerging technologies and trends in business, with technology representing the ability to gather, transform, and analyze data used for decision making. The commission recommends that accounting programs integrate these technologies throughout the curriculum. A Pathways' survey of accounting practitioners recommended business analytics as one of the top two skills for students (Janvrin & Watson, 2017; Pathways Commission, 2017).

2.3 Industry Requirements

The demand for data-driven analytics professionals is generating recruiting and retention challenges for employers. The most critical skills employers are seeking for their teams include identifying data trends, data mining, statistical modeling, data analysis, and verbal and written communication skills (Robert Half, 2016). These challenges extend to the four largest accounting firms, known as the "Big 4," whose members include PwC, Deloitte, EY, and KPMG (The Big 4 Accounting Firms, 2016). Given the rapid macroeconomic changes

occurring in business, leaders in these firms are recruiting individuals with the skills to help them compete. Literature from the Big 4 accounting firms were reviewed to identify the relative importance of accounting skills and included analytical, computing, quantitative, and complementary skills. For example, PwC offers accounting curriculum skills in technology and data analytics for students. In PwC's Annual Global CEO survey, 73% of respondents were concerned with finding key skillsets needed to support growth, 58% were concerned with the speed of technological change, and 80% placed data mining and analysis as one of the top two strategic technologies along with fluency in the use of mobile technology. However, one of the greatest barriers to using more analytics stems from a lack of skillsets (PwC, 2015).

PwC recommends that universities include analytical components into current curricula to expand core accounting skills (PwC, 2015). Most universities only offer an introduction course on computers or statistics for accounting majors, but there is a growing trend in dual majors such as Accounting and Information Systems. PwC (2015) suggests the following course curriculum map: 1) Basic Computing course (Programming, Coding, Spreadsheet, Database, Python, Java, Excel, Access, SQL, MongoDB, Hadoop), 2) Basic Statistics course (Programming, Data Gathering, Data Cleansing, Data Visualization, Descriptive Statistics, Multivariate Statistics, Data Analytics, R, Tableau, SpotFire, Qlikview), 3) Intermediate Statistics course (Analysis, Collaboration, Statistical Inference, Missing Data, Univariate Regression, Multivariate Regression, General Linear Model, Logistic Regression, Machine Learning, and Predictive Tools), and 4) additional complementary professional skills, including leadership, business acumen, global acumen, and relationships.

Deloitte also identified the trend of universities beginning to develop more quantitative analysts and data scientists. Technical skills identified include design thinking, visualization, and storytelling. General skills include thinking critically, collaboration, and communication (Deloitte, 2015). Specialists within Deloitte's Analytics group analyze information and provide insights using data mining, business intelligence, data warehousing, data visualization, and predictive modeling (Deloitte, 2019a). Deloitte has also transformed their auditing area to embrace advanced analytics capabilities. This allows audit professionals to data mine large sets of data and deliver granular insights. To fill this role, auditors require enhanced data analytic skills to improve audit quality and decision making (Deloitte, 2019b).

EY has incorporated analytics into their business offerings and defines analytics as the management and use of data, statistical analysis, quantitative analysis, explanatory models, predictive models, and fact-based management (EY, 2016). In 2019, EY launched a data science challenge to identify and develop data science talent from universities in 16 countries and regions around the world. The goal of the challenge is to help develop career data scientists whose mission is to help businesses in their transformation to the digital age (Burgess, 2019).

KPMG has incorporated analytics into their business offerings which include Big Data, business intelligence, enterprise analytics, and information management (KPMG, 2016). At a graduate course level, KPMG has also developed a Master of Accounting with Data and Analytics Program collaborating with universities to offer a forward-thinking data analytics program with specialized curriculum, use of state of the art analytics technology, and real-world client experience through KPMG tools and data sets. The curriculum framework includes: Data Analysis and Visualization, Systems for Data Analytics, Auditing through Information Systems, Probability and Uncertainty and Statistical Decision Making, Auditing with KPMG Automated Audit Procedures, The Future of Data and Analytics, The Future of Data and Analytics in the Tax Practice, Data Mining for Business Intelligence, and Fraudulent Financial Reporting. While much focus has been prepared at the graduate level, additional opportunities exist for undergraduate coursework (KPMG, 2017). A combined set of core accounting information systems and analytics skills are developed and are shown in Table 1. The skillset categories include functional, analytical and quantitative, information technology and computing, and complementary and generic.

Category	Skills
Functional	Budgeting, tax, financial, auditing, managerial, not-for-profit, accounting research skills
Analytical and Quantitative	Big Data, business intelligence, enterprise analytics, information management, machine learning, explanatory and predictive analytics, data visualization, statistics, statistical analysis, statistical inference, missing data, univariate and multivariate, regression, General Linear Model, logistic regression
Information Technology and Computing	Microsoft Office, security, XBRL, ERP, programming, coding, database, Python, Java, Excel, Access, SQL, Hadoop, R, Tableau, SpotFire, Qlikview, QuickBooks, tax preparation software
Complementary and Generic	Leadership, global acumen, relationships, fact-based management, communication, teamwork, ethics, critical thinking

Table 1. Accounting Analytics Skills

3. RESEARCH METHODOLOGY

3.1 Text Analytics

Text analytics is a relatively recent term and is an umbrella term which includes information retrieval, information extraction, data mining, and text mining. Estimates are that 85% of data are stored in unstructured text documents; organizations that utilize the information in these sources, e.g., to spot trends, opportunities, and weaknesses, can gain an advantage and improve decision-making (Sharda, Delen, and Turban, 2014). Text mining is an extension of data mining and is an automated method used to find and extract useful patterns, models, directions, trends, or rules from unstructured text. Typically, the text mining process consists of the following steps: data selection, data cleansing, data transformation, data mining, and results evaluation. Applications of text mining for information processing and analysis include classification/clustering, text summarization, link analysis, learning platform messages, and classification analysis of e-learning literature (Hung, 2008; Abdous and He, 2011). Debortoli, Muller, and Vom Brocke

(2014) utilized text mining to analyze job advertisements for business intelligence and Big Data job ads to uncover patterns and identify competency requirements in key areas of business knowledge and technical skills knowledge. Litecky et al. (2010) mined job advertisements for computing related jobs in combination with cluster analysis to further classify groups of competencies.

In general, a text mining process consists of three steps: 1) establish the corpus, 2) create the term-by-document matrix (TDM), and 3) extract patterns. The first step is establishing the corpus or the set of text documents used for discovery. All relevant documents in varying formats are included here such as HTML, XML, e-mail, documents, etc. After collection, all documents are organized into a set of directories and formatted into a standard text file format such as ASCII. The second step utilizes the corpus to generate a TDM, whereby the rows are the documents, columns are the terms, and indices are the relationship between the terms and documents measured commonly in terms of frequency. During this step, standard and expert driven stop words are removed to improve differentiating value. The output of the TDM includes each unique term excluding stop terms, each unique document, and the frequency count of each term within each document. The TDM matrix dimensionality is further reduced to improve underlying value. The last step of pattern extraction relies on methods including classification, clustering, association, and trend analysis.

3.2 Corpus

A set of the top 25 accounting programs were selected from the US News Accounting Rankings and Accounting Degree Accounting Rankings. US News is a recognized leader in university rankings, and Accounting Degree is an independent source for prospective accounting students (US News, 2017; Accounting Degree, 2018). All programs were searched and selected following identification of their web-accessible accounting course listing and descriptions. All course titles and descriptions were placed as text documents in a common repository.

3.3 Term-by-Document Matrix

Following data collection, a Term-by-Document Matrix (TDM) was generated (see Table 2). Several passes were made to remove "stop words." Stop words are the most common words in a language, such as "the" and "and." They do not efficiently add value to a search and actually make searches less efficient by including distracting information that is not relevant to the core search. Stemming, which is the act of reducing key terms to their base root, was also performed. This procedure simplifies the search by automatically searching for plurals and various verb tenses of key search terms. Row counts were performed, identifying the top 15 occurrences based on frequency and presence in program documents. For example, the term "accounting" occurred 418 times within all 25 program documents, whereas "tax" occurred 83 times within 21 program documents.

Keyword	Frequency of Occurrences	Number of Program Documents
Accounting	418	25
Financial	300	25
Statement	130	22
Business	119	25
Information	112	25
Report	98	23
System	97	24
Tax	83	21
Analysis	81	23
Decision	76	23
Control	66	20
Audit	64	22
Management	64	21
Income	57	23
Principle	56	21

Table 2. Term-by-Document (TDM) Top 15 Results

4. RESULTS

4.1 Extract Patterns

Cluster analysis is one technique that can be utilized to segment a corpus into mutually exclusive groups and further extract patterns (Baltzan, 2012). Cluster analysis was performed using a hierarchical clustering algorithm which groups the records together based on similarity of closest text as measured by distance between coordinates. Each record begins as a cluster, with the two nearest clusters merged, repeating until distinct clusters are formed. As an unsupervised machine learning algorithm, cluster analysis is often iterative and exploratory (Woodside, 2018b). Cluster analysis was run in iterations beginning with k=2 to identify clusters with segmented centroid distances, a minimum of n=2 records within each cluster, and individual records representative of descriptive terms to allow naming. A final cluster analysis with k=3 was selected based on this criteria. Following cluster analysis generation and results review, three primary clusters were identified and named based on record selection: 1) General Accounting, 2) Operational/Internal Audit, and 3) Financial/External Audit, as shown in Table 3. Financial audit, or external audit, reviews the financial statements of an organization through an external auditor using a standard framework. Operational audit, or internal audit, reviews the internal controls, fraud, compliance, financial information, risk management, operations, and governance through employees of the organization and covers several topics outside of a financial statements focus (Accounting Simplified, 2017).

Cluster Description	Keywords	# Records	% Records	Universities
1 – General Accounting	Understanding, accounting information, tools, focus, services, decision, issues, principles, reporting, control	7	28%	Miami University Ohio, New York University, St. Joseph's University, University of Illinois-Urbana-Champaign, University of Notre Dame, Indiana University-Bloomington, Virginia Tech
2 – Operational / Internal Audit	Financial accounting, topics, taxation, cost, financial statements, financial, managerial, accounting, concepts, auditing	12	48%	Brigham Young University-Provo, Michigan State University, The University of Mississippi, University of Texas-Austin, University of Pennsylvania, University of Michigan-Ann Arbor, University of Florida, University of Georgia, University of Missouri, University of Washington, University of Virginia-McIntyre, Wake Forest University
3 – Financial / External Audit	External, reporting, research, systems, tax, introduction, issues, analysis, principles, control	6	24%	Ohio State University, Texas A&M University, University of Southern California, University of California Berkeley, University of Wisconsin, University of Alabama

Table 3. Cluster Output

4.2 Results Discussion and Interpretation of Findings

Based on the text analysis, gaps between the curriculum course descriptions and the accounting analytics skillsets are identified. Functional skillsets of accounting are well established; however, curriculum gaps exist in the analytical, quantitative, computing, and complementary skillsets in the core accounting programs, with skillset categories identified in Table 4.

Skillset Category	Skillset Category Gaps
Functional	--
Analytical and Quantitative	Analytics, data visualization, statistical analysis
Information Technology and Computing	Programming and coding
Complementary and Generic	Leadership, global knowledge

Table 4. Accounting Analytics Skillset and Curriculum Gaps

4.3 Undergraduate Program Recommendations

Following further review, a summary undergraduate program plan and recommendations are developed to address the gaps identified and professionally prepare students. A sample accounting analytics course sequence and curriculum map is shown in Figure 1.

The knowledge areas are segmented into accounting domain knowledge with seven units, analytics and computing knowledge with five units, and global knowledge and ethical leadership with three units. Given the increased focus on analytical curriculum skills, an analytics area of emphasis or concentration may be denoted on the student's transcript to further certify their capabilities in this area.

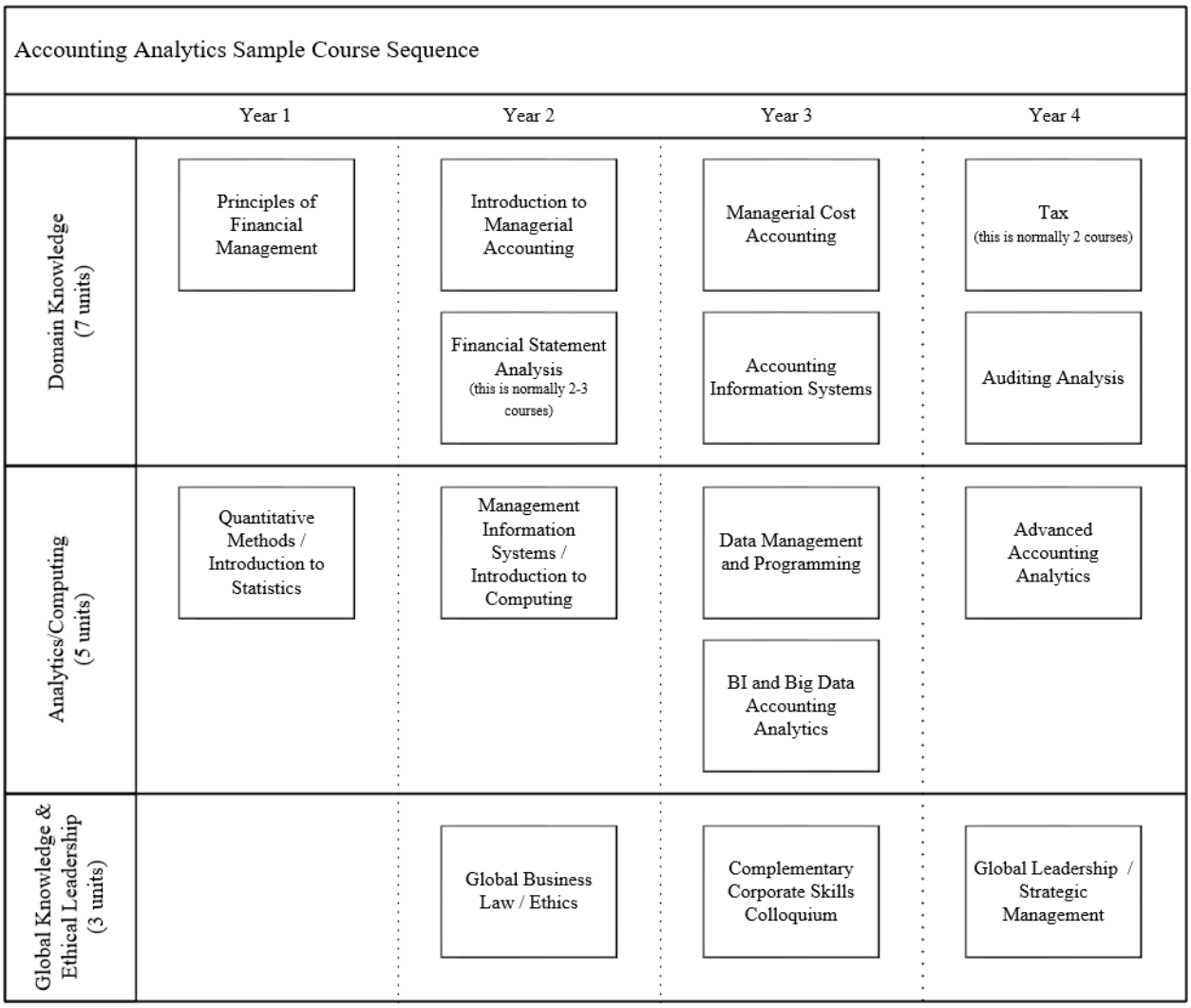

Figure 1. Accounting Analytics Curriculum Map

4.4 Limitations

Accounting programs are limited in the number of hours that they can offer, and they use those hours to emphasize courses that prepare students for the rigorous Uniform CPA examination with college credit requirements varying by state (Roger CPA Review, 2009). For those programs, complete implementation of the curriculum recommendations may be unachievable for those students without a double major or at least a minor in analytics. As an alternative for universities with credit hour constraints, analytics projects could be incorporated into existing accounting courses much the same way that manual accounting projects in principles courses were eventually automated. For example, at Duquesne University, courses have been updated to include additional skillsets, such as including advanced Excel skills within managerial/cost accounting courses and including Enterprise Resource Planning (ERP) systems within AIS and Auditing coursework (AICPA, 2015). Extending the analytics project integration to accounting analytics, Chambers, Woodside, and Mendoza (2018) developed a budgeting case using the Internal Revenue Service's Statistics of Income, a free database providing aggregate statistics on income and common expenses by industry type and company size, as shown in Figure 2. Development of these types of cases are still in an early stage and require a firm foundation within the core business curriculum as well as interdisciplinary collaboration between analytics and accounting faculty.

Table 2. Nonfarm Sole Proprietorships: Income Statements, by Industrial Sectors, Tax Year 2016—Continued
[All figures are estimates based on samples—money amounts are in thousands of dollars]

Net income status, item	Professional, scientific, and technical services—continued							
	Architectural, engineering, and related services							
	Total	Architectural services	Engineering services	Drafting, building inspections, and geophysical surveying	Surveying and mapping (except geophysical) services	Testing laboratories	Specialized design services	Computer systems design services
	(96)	(97)	(98)	(99)	(100)	(101)	(102)	(103)
BUSINESSES WITH AND WITHOUT NET INCOME								
Number of returns [1]	**280,184**	**129,573**	**90,208**	**47,176**	**7,272**	**5,954**	**265,140**	**280,871**
Business receipts, total [1,2]	**16,384,728**	**8,033,296**	**5,824,908**	**1,579,742**	**434,146**	**512,638**	**10,336,499**	**12,403,274**
Income from sales and operations [1]	16,211,318	7,873,243	5,812,334	1,579,673	** 946,068	**	10,178,124	12,382,642
Other business income (loss) [1]	173,410	160,053	12,574	* 68	** 716	**	158,375	20,631
Business deductions, total [1,2]	**11,267,744**	**6,001,433**	**3,688,253**	**822,748**	**305,990**	**449,321**	**7,885,318**	**7,322,694**
Cost of sales and operations, total	3,486,585	1,804,350	1,496,772	** 185,463	**	* [4]	3,771,361	1,852,685
Inventory, beginning of year	86,024	* 14,162	** 71,861	**	0	0	104,282	115,637
Cost of labor	412,553	293,698	** 118,855	**	0	0	167,459	574,986
Purchases	1,132,646	516,516	582,017	14,136	659	* 19,319	2,285,178	698,541
Materials and supplies	932,816	737,751	133,001	* 7,019	** 55,045	**	706,221	75,720
Other costs	1,006,359	254,710	662,526	** 89,124	0	**	623,540	516,175
Inventory, end of year	83,814	* 12,488	** 71,327	**	0	0	115,319	128,374
Advertising expenses	112,734	70,177	21,622	17,376	* 610	* 2,949	128,202	188,598
Car and truck expenses	767,547	410,023	169,769	135,697	9,760	* 42,299	450,674	527,677
Commissions	66,212	59,472	4,857	** 1,885	**	0	53,779	78,853
Contract labor	800,643	317,850	257,349	67,098	78,387	* 79,958	350,668	707,515
Depletion	* 151	**	0	** 151	0	0	0	* 26
Depreciation	548,593	375,067	79,613	21,293	* 47,041	* 25,579	207,408	155,871
Employee benefit programs	78,097	38,847	31,626	* 4,565	* 1,122	* 1,936	8,344	44,398
Insurance	298,884	185,385	66,522	30,750	12,678	3,550	42,942	42,735
Legal and professional services	237,287	124,311	89,056	16,338	3,765	3,817	113,365	114,886
Meals and entertainment deducted	90,387	41,906	34,497	12,202	569	* 1,213	70,334	93,539
Mortgage interest	28,709	10,470	* 6,861	* 11,154	** 224	**	6,962	5,164
Other interest paid on business indebtedness	55,906	28,254	20,082	* 2,402	* 367	* 4,801	30,463	24,129

Figure 2: Screenshot of Table 2 Excerpt from the IRS: Statistics of Income

5. FOLLOW-UP RESEARCH OPPORTUNITY: ADAPTATION OF A STANDARD ACCOUNTING PROJECT TO INTEGRATE IT

To further outline pathways and opportunities for research, a specific example of adapting a standard federal individual income tax assignment to include more technology is provided (Table 5). An accounting faculty member with only moderate technology skills using this type of adaptation would not need additional training or monetary investment. Several technologies are incorporated in this example, but all are at a basic level so as not to distract students from accounting content or sidetrack faculty with technology questions. This adaptation is scheduled to be launched at one private university in Fall 2019 and includes a brief research task as promoted by accountants. The key to this research task can come from IRS Publications at a basic level for undergraduates or from the Internal Revenue Code as tested on the Regulation section of the Uniform CPA exam for a more rigorous challenge. While Parts 3 and 4 rely on Part 2, Parts 2 and 5 may be assigned separately or in combination as shown here with or without Part 3 and/or 4 if a smaller change to current assignments is desired.

Required Task	AACSB A7 Skill	Kearns (2017) Skill	IT Software	Points
1. Prepare hypothetical tax return with Schedule C (no change from original project).	Data creation Data reporting	Functional	ProSeries, TaxAct, or other professional tax preparation software	75
2. Find the latest Statistics of Income for this business (for Architect, e.g., use https://www.irs.gov/pub/irs-pdf/p1136.pdf). Provide a screenshot (see Figure 1) and import the data into Excel.	Data mining	IT – mining	Web and Excel	5
3. Create a comparative spreadsheet where Column A is the specific revenue or expense category, Col. B is the client figures from the 1040, Col. C is the amount from the SOI table above, and Col. D is the % difference between Cols. B & C.	Data analytics	IT – transformation	Excel	5
4. Graph the most important variance.	Data analytics	IT – visualization; Generic – critical thinking and communication	Excel or other visualization software	5
5. Research and write a one-page or less essay answering these questions: a) With whom can a tax preparer share 1040 data? b) How long must a preparer keep copies of client tax returns? c) What other data security rules apply to client tax returns? Cite sources.	Data sharing Data storage	Generic – problem solving and communication	Web, and Internal Revenue Code if added to the task	5

Table 5. Standard Tax Preparation Assignment Adapted to Integrate Additional Technology

6. CONCLUSIONS

While many graduates are initially employed in public accounting, long-term most are employed in the private sector. Analytics and information systems skillsets have been identified as fundamental to accounting and are incorporated into all career areas; however, most accounting programs focus on superficial coverage beyond introductory courses as faculty are not provided detailed area content coverage and ways to integrate within the accounting curriculum (Rebele and St. Pierre, 2015). Different stakeholder perspectives often create challenges in degree course design. Industry requires graduates with more relevant skills; however, insufficient evidence exists on the specific skills or how these skills may evolve over time. In a rapidly evolving technological environment, this is a very serious problem for academia and graduate employment (Stefanidis, Fitzgerald, and Counsell, 2013) for which a solution is offered to further discussion. The Accounting Analytics customized curriculum addresses the prior research gaps and provides students an opportunity to take advantage of the growing interdisciplinary field and student interest among accounting, business, and technical career paths. The curriculum is developed to better prepare graduates with the critical knowledge, skills, and abilities to be successful in this new-age workforce. Originality of the approach and contributions include the advancement of accounting information systems research through research that contains an empirical focus via text analytics, demonstrating AASCB accreditation requirements, and a formalized curriculum map addressing key skills gaps to align accounting analytics coursework with industry-required skills.

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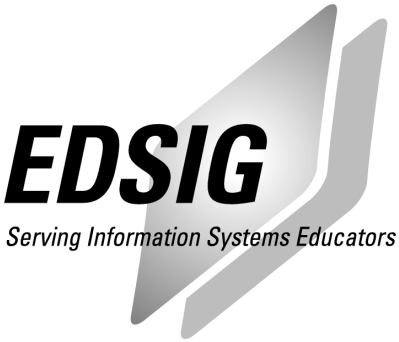

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