Creating an Accounting Data Analytics Course

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Agenda

Current market

Skills in demand

Scaffolding learning

Bringing it all together

See note E on page 58. Due to rounding, values may not equal 100%
The number of non-CPA professional staff in accounting/finance functions in U.S. CPA Firms is expected to continue to grow.

56% of firms planned to hire more or the same amount of non-accounting graduates in 2022 as they will in 2021.
Is that the whole story?

2020 Accounting Graduates

- Accounting Graduates not going to CPA firms: 62%
- CPA Firm Accounting Graduate Hires - 2020: 38%

Based on Data from the AICPA 2021 Trend Report
Skills Required for New Accounting Graduates

![Bar chart showing skills required for new accounting graduates. The chart indicates the following percentages and number of postings:

- Communication: 58% (350 postings)
- Critical Thinking: 51% (300 postings)
- Quantitative: 23% (230 postings)
- Social: 23% (200 postings)
- Team: 7% (70 postings)

The chart illustrates the demand for various skills in accounting job postings.](chart)
Technology Skills Required

- Excel: 95%
- Database: 50%
- Quickbooks: 9%
- Netsuite: 6%
Skills in Demand

DATA LITERACY
CRITICAL THINKING
TECHNOLOGICAL AGILITY
COMMUNICATION SKILLS

©2022 Dzuranin, Geerts, & Lenk, Data Analytics in Accounting: An Integrated Approach John Wiley & Son’s, Inc.
What is Data Literacy?

The ability to read, write and communicate data in context

Including understanding of

- Data sources and constructs
- Analytical methods and techniques applied
What is Critical Thinking?

- **Critical Thinking**: Disciplined reasoning used to investigate, understand, and evaluate an event, opportunity, or an issue.

- **Reasoning**: the human process of logically forming conclusions, judgements, or inferences from facts.
• The professional habit of critically thinking through the planning analysis, and interpretation of data analysis results before making or communicating a professional choice or decision.

• Individuals with a data analytics mindset:
  • Are inquisitive
  • Ask “Why?” when interpreting results
  • Are open to learning new technologies
  • Take the time to evaluate their own thinking.
What are the elements of critical thinking essential for data analysis?
What is Technological Agility?

The mindset of being aware of the latest technological developments and a willingness to try new things.

Being comfortable learning new technology helps students become more agile.
Communication Skills

WRITING CLEAR AND EFFECTIVE MEMOS AND REPORTS

PREPARING SUCCESSFUL PRESENTATIONS

CREATING MEANINGFUL DATA VISUALIZATIONS

TELLING COMPELLING DATA STORIES
Integrating Data Analysis Skills

Scaffolding Learning Throughout Your Curriculum
What is Scaffolding?

• Like the scaffolding used in construction to support workers as they work on a specific task

• Instructional scaffolds are temporary support structures faculty put in place to assist students in accomplishing new tasks and concepts they could not typically achieve on their own.

• Once students can complete or master the task, the scaffolding is gradually removed or fades away—the responsibility of learning shifts from the instructor to the student.
Recall the skills ...

- Critically thinking
- Data
- Technology
- Communication
Scaffolding Data and Analysis Skills

**Intro courses**
- Basic Excel
- Data visualization software

**AIS**
- Data
- Databases
- Data Extraction

**Financial Accounting Courses**
- Intermediate Excel
- Data visualization

**Audit**
- Audit software
- Data visualization

**Cost**
- Advanced Excel
- Data Visualization

**Tax**
- Data visualization
- Excel

**Data Skills**

**Data Analytics**

**Critical Thinking Skills**
Which Technology Should I Use?

1. Think about the organizations that hire your students.

2. Consider the resources that your students can access.

3. Consider the resources your school has available.
Technology

Current
- ACL/Idea
- Alteryx
- Database (Access, SAP, Oracle)
- Excel
- Power BI
- Tableau

Emerging
- Celonis
- RPA
  - Automation Anywhere
  - Blue Prism
  - UI Path
Time for Them to Fly
Accounting Data Analytics Course

Class Topics – Undergraduate, Upper Level

• Data Analytics Mindset
• Data Analysis Objectives and Questions
• Data Preparation
• Exploratory Data Visualization
• Explanatory Data Visualization
• Descriptive Analytics
• Diagnostic Analytics
• Predictive Analytics
• Prescriptive Analytics
Module 1: 2 weeks
- Data Analytics Mindset
- Data Analysis Objectives and Questions

Module 2: 4 weeks
- Data Extraction & Preparation (including SQL)
- Information Model Building

Module 3: 2 Weeks
- Exploratory Data Visualization
- Explanatory Data Visualization

Module 4: 7 Weeks
- Descriptive Analytics
- Diagnostic Analytics
- Predictive Analytics
- Prescriptive Analytics
Accounting Data Analytics Course

Class Topics – Graduate/ 5th year

• Motivation, Objectives, Strategy
• Cleaning and Preparing Data for Analysis
• Descriptive & Diagnostic Cases
• Predictive & Prescriptive Cases
• Communication and Storytelling with Data
• Decision-Making Biases and Heuristics
Class Schedule – Graduate/5th Year

Module 1: 2 Weeks
- Motivation, Objectives, Strategy

Module 2: 2 weeks
- Cleaning and Preparing Data for Analysis

Module 3: 8 weeks
- Descriptive & Diagnostic Cases
- Predictive & Prescriptive Cases

Module 4: 2 weeks
- Communication and Storytelling with Data
- Decision-Making Biases and Heuristics
Resources

- **EY Academic Resource Center:**

- **Tableau for Teaching:**
  [https://www.tableau.com/academic/teaching](https://www.tableau.com/academic/teaching)

- **American Accounting Association Intensive Data and Analytics Workshop (May 23-26, Orlando):**
  [https://aaahq.org/Meetings/2022/Intensive-Data-and-Analytics-Workshop-III](https://aaahq.org/Meetings/2022/Intensive-Data-and-Analytics-Workshop-III)

- **AAA AIS Boot Camp: Technology Revolution in the Time of CPA Evolution (June 15 - 16, Chicago):**
  [https://aaahq.org/Meetings/2022/Accounting-Information-Systems-Bootcamp](https://aaahq.org/Meetings/2022/Accounting-Information-Systems-Bootcamp)

- **AIS Educators Conference (July 14 – 16, Colorado Springs):**
  [https://aiseducators.net/conferences/2022-colorado-springs/](https://aiseducators.net/conferences/2022-colorado-springs/)
• **Alteryx**: [https://www.alteryx.com/sparked](https://www.alteryx.com/sparked)

• **Excel Certification - Microsoft Office Specialist Certification**: [https://certiport.pearsonvue.com/](https://certiport.pearsonvue.com/) (Note – pricing is much cheaper when your university purchases bulk testing. At NIU we pay for the testing, not the students)
Ann C. Dzuranin: “The Future of Management Accounting: Data Visualization.” *Statements on Management Accounting*


Ann C. Dzuranin: “Explanatory Data Visualizations”, *Strategic Finance, January 2022*

• **AICPA Audit Analytics Guide:**
  [https://www.aicpa.org/interestareas/frc/assuranceadvisoryservices/auditdataanalyticsguide.html](https://www.aicpa.org/interestareas/frc/assuranceadvisoryservices/auditdataanalyticsguide.html)

• **EY ARC** – “Introduction to data visualization” under “Analytics Mindset” resources

• **WileyPLUS Resources**
  - Data Visualization Assignments
  - Analytics in Action Assignments
  - Data Analytics in Accounting: An Integrated Approach – Chapter 9*


• Knaflic, Cole Nussbaumer, “*Storytelling with data, a data visualization guide for business professionals*”, Wiley, 2015
Other Data Visualization Resources

• AICPA Audit Analytics Guide: https://www.aicpa.org/interestareas/frc/assuranceadvisoryservices/auditdataanalyticsguide.html

• EY ARC – “Introduction to data visualization” under “Analytics Mindset” resources

• WileyPLUS Resources
  o Data Visualization Assignments
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Introducing Data and Analytics in Accounting

• Takes an integrated approach to help students learn to think critically when using data and analytics tools.

• Addresses data analytics topics in the five fields of accounting (Financial, Managerial, Auditing, Tax, and Accounting Information Systems).

• Answers the “How” and “Why” of problem-solving with data analytics.

• Helps students deeply understand concepts and apply what they have learned.

• Learning is presented in the context of a professional environment to expose students to how and why data analytics is applied in the accounting profession.

https://sway.office.com/5d550fNS09ZP04er?ref=Link&loc=mysways

Helping Today’s Learners Become Tomorrow’s Accountants.
Introducing *Data and Analytics in Accounting*

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Sneak Peak:
https://sway.office.com/5d550fNS09ZP04er?ref=Link
Thank you!

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Feel free to contact me with questions! adzuranin@niu.edu