HUB of Analytics Education

June 8, 2017
3:30 EDT-2:30 CDT-1:30 MDT-12:30 PDT
To receive CPE Credit, be sure to respond to all of the polling questions during the session and fill out the CPE Verification Form at the end of the session.

The CPE Form will appear as you click off the webinar

Your responses, along with your attendance, will comprise the criteria for Continuing Professional Education credit, as regulated by NASBA. Attendees at this presentation who meet the criteria will be awarded 1.2 CPE Credit Hour in the NASBA Field of Study category, “Specialized Knowledge and Application”

NOTE: The American Accounting Association is registered with the National Association of State Boards of Accountancy (NASBA) as a sponsor of continuing professional education on the National Registry of CPE Sponsors. State boards of accountancy have final authority on the acceptance of individual courses for CPE credit. Complaints regarding registered sponsors may be addressed to the National Registry of CPE Sponsors through its Web site: http://www.learningmarket.org
HUB of Analytics Education

BIBITOR, LLC
HUB of Analytics Education

BIBITOR, LLC

Charlie Bame-Aldred
Northeastern University

Bill Goldman
Northeastern University

Jennifer Johnson
University of Texas at Dallas

Theo Stratopoulos
University of Waterloo

Lorrie Metzger
University at Buffalo
HUB of Analytics Education

BIBITOR, LLC

1,100 Employees

Sales, Purchases, and Payroll
Flowcharts

15 Million Records

Flat Files or Netsuite.com

$441 M Sales

Retail Liquor Chain

10,000 Brands

Open Educational Resources (OER)

79 Retail Locations
• Data Analysis Tools
  • ACL and IDEA for Accountants and Auditors
  • Tableau and R for Everyone
• Exercises and Cases Using Data Analysis Tools
  • Audit Tests
  • Sales Analysis, Product Analysis, and CVP (coming soon)
  • Simple Linear Regression
• YouTube Tutorial Videos
• Incorporating into Accounting Courses
  • Focus on developing questions
  • Using BI Tools and Visualization Tools to develop answers
  • Communicating to decision makers
The HUB of Analytics Education at Northeastern University is:
a. a paid subscription  
b. an open educational resource (i.e., Free) 
c. licensed to universities 
d. accessed by invitation only
The HUB of Analytics Education includes

a. A transactional dataset with close to 15 million records
b. Exercise and cases for Auditing, Management Accounting and Statistics
c. Process flowcharts for Sales, Purchases, and Payroll
d. Demographic information, including population data, income data, race, age, etc.
e. All of the above
• Shift in Focus
  • Theory Supported with Data
  • Data Usage Generalize to Theory
  • EXAMPLE – Sales Analysis Case Using Tableau
    • What is the total SALES DOLLARS and percentage breakdown of wine and spirits?
    • What is the most popular SIZE for wine and for spirits based on SALES DOLLARS and QUANTITY?
    • Who is the most popular Vendor for wine and for spirits based on SALES DOLLARS and QUANTITY?
    • Which MONTHS have the highest and lowest SALES?
• Using Tableau to Visualize the Answers
  • Simple drag and drop
  • YouTube videos for you and your students
  • Tableau workbooks and suggested solutions
• Lessons Learned
  • Operating system issues
  • Load data time (first time)
    • Blending/Joining Data
  • Sharing workbooks due to the size of files
    • Not currently running on Tableau Server
• Example – Inventory Recalculations Using Excel
  • What is the total Inventory Cost for Beginning and Ending Inventory?
  • Does the Inventory Cost for Ending Inventory agree to the Unaudited Financial Statements?
  • What do you learn from Financial Statements, Process Flowcharts and Process Manuals?
• Using Excel to Answer the Questions
  • Identify the Accounting Treatment for Inventory by reading the financial statements
  • Used V-Lookup (Brand Number) to populate the Purchase Price for each Brand.
  • Ending Inventory agreed to the Financial Statement and students identified Brands with negative margins!
• Final Exam – Teammate Analytics Excel add-in
  • Comprehensive dataset (Inventory, Sales, and Purchases)
  • Worked with the HUB of Analytics Education to create a customized single city dataset (Hardersfield) with 2 locations (.csv files less than 1 million records)
  • Custom Hardersfield file was too big to efficiently process using Excel.
• Other Data from the University
  • Partnered with the University’s Internal Audit Group
  • Data Analytics Projects
    • Duplicate Payments
    • Travel and Entertainment Expenses
    • Employee to Vendor Address Match
    • Vendor Contract Pricing
• Lessons Learned
  • Academic Versions of ACL and IDEA are limiting
  • Cleaning and Preparing Data from sources other than the HUB is time consuming
  • Results from data analytics can be subjective
  • Different teams arrived at different conclusions
    • Approach and Interpretation of the Results
• Example – Exploration of Sales and Purchases
  • Used HUB Sales Analysis Case Questions
  • Created Additional Questions with the Purchases Data
  • Tied results to our classroom discussions on the revenue and expenditure cycles.
  • What do Visualizations say about Bibitor, LLC?
  • Are there areas management should consider addressing?
  • Beyond the numbers, what is the Bibitor, LLC Story?
• Using Tableau for Data Exploration
• Using Tableau for Data Exploration

**Total payments by year/quarter/month**

- Month of Receipt:
  - January
  - February
  - March
  - April
  - May
  - June

- Pay Date:
  - Q1 (Jan, Feb, Mar)
  - Q2 (Apr, May, Jun)
  - Q3 (Jul, Aug, Sep)
  - Q4 (Oct, Nov, Dec)

Notice how the circles are different sizes based on amount of purchases.

*Caption:
Receiving Date Quarter (color) and sum of Dollars (size) broken down by Pay Date Year, Pay Date Quarter, and Pay Date Month vs. Receiving Date Month.*
• Lessons Learned
  • Tableau Licenses are Free and Easy to install!
  • Instructor Training Time
  • Students wanted more experience with Data Analytics
  • Local company representative validated Tableau use
  • HUB has huge Datasets (Good and Bad)
  • HUB YouTube Videos are helpful for Instructors and Students
Building an Analytics Foundation at Waterloo

- GOAL: Integrate Analytics in Many Courses
- NEED: Common Foundation
- Begin with Statistics for Finance and Accounting Students
- Use R and the HUB of Analytics Education Open Resources
• Example – Use linear regression to form expectations.
  • What is the model to estimate store level revenue?
  • What is the model to disaggregate mixed costs?
  • What does summary output from R generated regression mean?
  • What is the quality of the R generated model?
  • What are the future expectations?
• Using R for Data Modeling
  • Examined descriptive statistics, box plots and histograms
  • Developed the regression model for Bibitor, LLC
  • Interpreted the regression output.
  • Performed diagnostics, including removing outliers
  • Developed estimates of sales and costs.
• Lessons Learned
  • R is OPEN SOURCE and Powerful
  • Switching to other packages (e.g., Tableau) is easier
  • R is a programming language – Instructor and Student Training Issues
  • Five R Computer Lab Sessions – Not Enough for Students
  • Developing future materials, including Introduction to SQL with R for Auditing and Management Accounting
Question

Professor Stratopoulos submitted materials to the HUB of Analytics Education to help faculty learn how to teach simple linear regression to auditors. He uses

a. Tableau
b. ACL
c. R
d. IDEA
e. Watson Analytics
• How Can You Use the HUB?
  • Sign up for your Educator Account (http://HUBAE.org)
  • Explore the datasets and other teaching materials
  • Subscribe to the HUB YouTube Channel
  • Follow our LinkedIn Company

• How Can I Help the HUB?
  • Submit your cases and exercises to share with others
  • Our growth is 100% organic. Spread the word!!
Thank You

Questions?

HAE@Northeastern.edu

http://HUBAE.org

HUB YouTube Channel

Charlie Bame-Aldred
Northeastern University

Bill Goldman
Northeastern University

Jennifer Johnson
University of Texas at Dallas

Theo Stratopoulos
University of Waterloo

Lorrie Metzger
University at Buffalo
HUB of ANALYTICS EDUCATION

Preparing students for the future, millions of records at a time

School of Business
D’Amore-McKim
Northeastern University
Thank you Sponsor!

Accounting IS Big Data Webinars
Accounting IS Big Data Conference 2017

The Ever-Changing Big Data Ecosystem—Learn the latest

The Accounting Function of the Future—How to be prepared

Gain Insights from 3 Different Company Perspectives—How They See Around the Corner to determine when to move and what are their keys to success in data and analytics

New this year: Hands-on Workshops Friday afternoon

Back by Popular Demand: Young Professionals Panel, New Big Data Cases, and Technology Visionaries Panel

2017 Accounting IS Big Data Conference
Brooklyn, NY
9/7/2017 - 9/8/2017

New York Marriott at the Brooklyn Bridge
333 Adams Street
Brooklyn, NY 11201
718-246-7000
CPE Reminder

June 8, 2017

To receive CPE Credit, be sure to respond to all of the polling questions during the session and fill out the CPE Verification Form at the end of the session.

The CPE Form will appear as you click off the webinar

Your responses, along with your attendance, will comprise the criteria for Continuing Professional Education credit, as regulated by NASBA. Attendees at this presentation who meet the criteria will be awarded 1.2 CPE Credit Hour in the NASBA Field of Study category, “Specialized Knowledge and Application”

NOTE: The American Accounting Association is registered with the National Association of State Boards of Accountancy (NASBA) as a sponsor of continuing professional education on the National Registry of CPE Sponsors. State boards of accountancy have final authority on the acceptance of individual courses for CPE credit. Complaints regarding registered sponsors may be addressed to the National Registry of CPE Sponsors through its Web site:
http://www.learningmarket.org