INTRODUCTION TO HANA & TABLEAU

UKAT Institutional Research & Advanced Analytics

analytics@uky.edu
AGENDA

Introductions
What is HANA?
What’s in HANA?
The HANA Codebook
What is Tableau?
What can I do with Tableau?
Tableau Desktop vs. Tableau Server
How to Get Access
Tableau Software Resources and Support
Demo
WHAT IS HANA?

SAP HANA is an in-memory data platform that is deployable as an on-premise appliance, or in the cloud. We (at UK, use it as an on-premise database management system (DBMS)).
WHAT’S IN HANA?

Student Data

- Enrollment
- Demographics
- Courses
- Degrees
- Majors and Minors
- Scores
- The Study
- Graduation and Retention
- Credit Hours
- Attempted/Earned Grades
WHAT’S IN HANA?

Student Data

There are currently so many tables and fields in HANA we created a guide, we call the Code Book, that lists all of the data in UK HANA.
The Code Book is a reference guide that helps users to know what type of data is currently accessible in HANA. It includes model names, field definitions, and example data. It is located in the Student Reports project folder on Tableau Server.

https://analytics.uky.edu/
## HANA Code Book

### Table Description for STUDENT.CPE_ENROLLMENT_DATA

<table>
<thead>
<tr>
<th>Table Name</th>
<th>Includes</th>
<th>Excludes</th>
<th>Update Frequency</th>
<th>Row Definition</th>
<th>Unique Row Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>STUDENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPE_ENROLLMENT_DATA</td>
<td>Includes information about the students at the Census Date. This model includes only Fall data starting with data from Fall 2009. This is the date that was submitted to CPE.</td>
<td>Data of terms other than Fall are not included.</td>
<td>Once a year (after the CPE data is submitted)</td>
<td>The row will have one record per student per term</td>
<td>STUDENT_ID</td>
</tr>
</tbody>
</table>

### Special Notes for STUDENT.CPE_ENROLLMENT_DATA

**STUDENT.CPE_ENROLLMENT_DATA**

None.

### Field Definitions for STUDENT.CPE_ENROLLMENT_DATA

<table>
<thead>
<tr>
<th>Table Name</th>
<th>Field Name</th>
<th>Definition</th>
<th>Example Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPE_ENROLLMENT_DATA</td>
<td>ACADEMIC_TERM</td>
<td>Academic Term designates a portion of an Academic Year using a calendar year translation</td>
<td>Spring 20</td>
</tr>
<tr>
<td>CPE_ENROLLMENT_DATA</td>
<td>ACADEMIC_YEAR</td>
<td>The time during which an educational institution holds classes</td>
<td>2014 corr</td>
</tr>
<tr>
<td>CPE_ENROLLMENT_DATA</td>
<td>ACT_SCORE</td>
<td>Maximum Composite ACT Score obtained by student</td>
<td>27</td>
</tr>
<tr>
<td>CPE_ENROLLMENT_DATA</td>
<td>AOE</td>
<td>A calculation based on birth date</td>
<td>25</td>
</tr>
<tr>
<td>CPE_ENROLLMENT_DATA</td>
<td>CLASSIFICATION</td>
<td>Identifies the level of achievement a student has obtained.</td>
<td>Undergrad</td>
</tr>
<tr>
<td>CPE_ENROLLMENT_DATA</td>
<td>COUNTRY_OF_RESIDENCY</td>
<td>The country of residency of the student</td>
<td>United St</td>
</tr>
<tr>
<td>CPE_ENROLLMENT_DATA</td>
<td>COUNTRY_OF_RESIDENCY</td>
<td>The county of residency of the student, only when they belong to United States</td>
<td>Fayette,</td>
</tr>
<tr>
<td>CPE_ENROLLMENT_DATA</td>
<td>DEGREE_LEVEL_CPE</td>
<td>The name of the degree level using the CPE definition</td>
<td>Bachelor</td>
</tr>
<tr>
<td>CPE_ENROLLMENT_DATA</td>
<td>ETHNICITY_CPE</td>
<td>Ethnicity by CPE definition</td>
<td>Hispanic,</td>
</tr>
</tbody>
</table>
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**WHAT IS TABLEAU?**

*Tableau* is a business intelligence and analytics tool that helps users see and understand their data. It is easy to use and allows for fast analytics.

*Tableau* is not a Business Warehouse (BW) or Business Objects, and is way cooler than Excel. It is a powerful tool that does more than report rows and columns of data.

*Tableau* is not a data editor. *Tableau* only shows what exists in SAP. Note: Advanced Analytics can not change data that is incorrect. Email analytics@uky.edu to report data that is incorrect.
WHY TABLEAU?

- Interactive data visualizations can greatly reduce the need for endless variations of reports (e.g. a report for each department).

- Sophisticated Tableau reports can be designed by existing staff who know the data well and understand executive reporting needs… but who are not IT experts.

- Tableau is beautiful. Not only are the visualizations elegant, but it is easy to place Tableau created workbooks on Tableau server to share with your college or department.

- Tableau is FUN!
WHY SHOULD I USE TABLEAU?

There are many reasons why one should use Tableau. A few are:

- It is very easy to use.

- You don’t need to know programming of any sort. All you need is some data and Tableau to create visually enchanting reports which communicate a story that you need to tell your audience.

- With Tableau’s drag and drop feature, you can easily create visual stories or reports using just your mouse and a little imagination.

People with little or no training can see and understand data faster than ever in ways like never before.
How does UK & Advanced Analytics use Tableau?

- **Tableau Desktop**
  - The main Tableau application installed on your local machine.
  - Workbooks must be initially created using Tableau Desktop.
  - Licenses must be purchased individually.
  - To purchase Tableau Desktop, please contact Mark Evans with Tableau Software for educational pricing (mevans@tableau.com).

- **Tableau Server**
  - An online tool for accessing and sharing published workbooks.
  - Workbooks on Tableau Server can be customized.
  - University-wide license (email analytics@uky.edu for access).

The following slides show examples of Tableau in use at UK.
Web Based Interactive Pages

Student Data - Enrollment

Based on the criteria selected above the total enrollment is: 275,369

Enrollment by Year

- Fall 2004: 26,545
- Fall 2005: 26,439
- Fall 2006: 27,209
- Fall 2007: 26,848
- Fall 2008: 26,913
- Fall 2009: 27,171
- Fall 2010: 28,037
- Fall 2011: 28,094
- Fall 2012: 28,928
- Fall 2013: 28,385
Web Based Interactive Pages

Student Data - Enrollment

Based on the criteria selected above the total enrollment is: 275,369
Tableau Server

Institutional Enrollment

Year/College/Degree Type

Based on the selected criteria the total enrollment is: 141,815

Enrollment by Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2009</td>
<td>27,171</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>28,037</td>
</tr>
<tr>
<td>Fall 2011</td>
<td>28,004</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>28,929</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>28,385</td>
</tr>
</tbody>
</table>

Enrollment by College

<table>
<thead>
<tr>
<th>College</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag, Food and Environment</td>
<td>14,737</td>
</tr>
<tr>
<td>Arts and Sciences</td>
<td>29,497</td>
</tr>
<tr>
<td>Business &amp; Economics</td>
<td>13,857</td>
</tr>
<tr>
<td>Communication and Information</td>
<td>7,057</td>
</tr>
<tr>
<td>Dentistry</td>
<td>1,352</td>
</tr>
</tbody>
</table>

Academic Term:
- (All)

College:
- (All)

Primary Major:
- (All)

Residency:
- (All)

Status:
- (All)

Degree Level Cpe:
- (All)

Classification Cpe Group:
- (All)

Gender:
- (All)

Underrepresented Minorities:
- (All)

Ethnicity Cpe:
- (All)
DESKTOP VS. SERVER

What’s the difference?
Tableau Desktop

• A data visualization application that allows one to consume, build and publish virtually any type of structured data and produce highly interactive, graphs, dashboards, and reports in just minutes.

• We envision that each college/business area would purchase at least one Tableau Desktop license. The “power user” can then develop and publish reports customized to the needs of the college/organization.
Tableau Server

- A browser-based tool very similar to Tableau Desktop. The main limitation is you cannot create a new workbook from a data source.
- NO license fee required as with Tableau Desktop.
- Tableau Server is a repository for Tableau workbooks created using Tableau Desktop.
- Tableau Server users can interact with, edit, and save changes made to the workbooks the college/organization “power user” published to Tableau Server.
- No expertise required to interact with the workbooks on Tableau Server.
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HANA?
Tableau Desktop?
Tableau Server?
How do I get started?
The Resources and Support page highlights the popular user-facing data reporting tools and systems currently in use at UK. HANA (or SAP HANA) is the user-facing database from which you can pull operational data on students, faculty, and much more. Tableau (as well as other tools utilizing an ODBC connection) can directly connect with HANA allowing users to create data visualizations and reports.

**News & Information**

**Analytics News**  Features information for Tableau Open Labs, updates & changes to HANA, and miscellaneous information that will be of benefit to the Tableau/HANA community.
How to Install HANA Client (pdf)  In order to connect Tableau Desktop to data in HANA you will need to follow the steps in this document to connect to the HANA databases. The most up-to-date version of this document can be found on the Resources and Support page.

Need assistance? Please complete the Advanced Analytics Contact Us form.

Much, much more….

Introduction to HANA and Tableau - This presentation document.

Tableau 101 - A beginners guide to building a basic workbook using the Enrollment CPE model in HANA.

http://www.uky.edu/iraa/resources-support
Tableau Software Training & Resources

Quick Start Guides

Get Started with Tableau Desktop - English | Deutsch | Español | Français ...
Get Started with Tableau Server - English | Deutsch | Español | Français ...

Training videos

Free online training is internet-based recorded sessions that are available whenever you are.
Learn online at your own pace.
**Introductory**: Step-by-step instruction on connecting to data, creating views and more.
**Advanced**: Over 30 videos covering topics like efficiency, calculations, statistics, mapping and more.
**Server**: These videos cover everything from using to administering your Tableau Server.
**Chart Type**: Learn how to build special charts - anything from funnel charts to Bollinger Bands.

Tableau Community

Join the Tableau Community Forums to find solutions for what you need to accomplish. Ask questions to receive help and feedback.

Tableau Visual Gallery

Get inspired by the many interactive visualizations in the Visual Gallery. Download the workbooks to play with on Tableau Desktop.
Questions?