Analyzing Course Completion Rates

USE CASE #1 FOR EAB’S ACADEMIC PERFORMANCE SOLUTIONS TOOL

Note: This presentation corresponds to an excel file called “APS_Course Completion Rates by Dept_2016”
Outline / Overview

1. Defining Course Completion
2. Why do course completion rates matter?
3. What do we want to know about course completion rates?
4. Looking at the Big Picture
5. Drilling Down to the Department Level
6. Drilling Down to the Course / Section Level
1. Defining Course Completion

APS calculates course completion rates as follows:

- Earned Credits ÷ Attempted Credits = Completion Rate (%)

APS defines earned, unearned, and attempted credits as follows:

- Earned Credit: Student received an A, B, C, D, or Pass.
- Unearned Credit: Student received an F, W, Incomplete, other failing grade.
- Attempted Credit: Student was enrolled in the course as of the add/drop deadline.
2. Why do course completion rates matter?

Students who receive failing grades or incompletes...

- Take a longer time to complete their degree.
- Are at risk of losing their financial aid or scholarships.
- Are less likely to be retained.
3. What do we want to know about course completion rates?

- How do course completion rates vary within and across schools and departments?
- Which departments have the lowest course completion rates?
- Within these departments, which courses have the lowest completion rates?
- Within a given course, how much variation is there in section-level completion rates?

**Follow up questions:**

- Why is this happening?
- What are the implications for students?
- What can we do to improve the situation?
4. Looking at the Big Picture (Example College)

Median Course Completion Rates, by Department and Number of Students Enrolled: AY2016 (Lower Division Courses Only)
APS Tutorial #1: Finding Big Picture Data

Steps to create the scatterplot on the previous slide:

1. Download completion rate data from APS:
   - Department scorecard tab
   - Filters: Academic year=2016, Term=Fall 2015, Spring 2016, College Name=___, Course Division=Lower division
   - Scroll down to “Course Completion” to see the “Distribution of Course Completion Rates by Department” graph.
   - Click on one of the departments (e.g., Africology).
   - In the window that pops up, click on “Distribution of Course Completions.” This will show you the data for all departments in the college.
   - Click on the grey arrow and select the option to download data as Excel XLSX file.

2. Download number of registered students from APS:
   - Same tab and filters as Step 1.
   - Scroll down to “enrollments” (near the top of the screen).
   - Click on “View Student Coursework Enrollment Trends by Department” to see the number of registered students in each department for 2016.
   - Click on the grey arrow and select the option to download data as Excel XLSX file.

3. Clean up the data in Excel
   - Delete unwanted columns (e.g., 25th percentile, 75th percentile, enrollment numbers for years other than 2016)
   - Paste the registered students column next to the completion rate column. Double check to make sure the departments match up.

4. Plot the data on a scatterplot
   - In Excel, go to the “Insert” tab.
   - Highlight the two columns of data.
   - Click the scatterplot graph option.
   - Label axes, decide whether to label data points, etc.
5. Drilling Down to the Department Level (Example Department)

Lower Division Courses with Completion Rates below the Median (85%): AY2016

You can download a graph that is very similar to this via APS.
APS Tutorial #2: Finding Department-level Data

Steps to create a completion rate graph for lower division courses in your department:

1. Find the median course completion rate for lower division courses in a particular department.
   - Students tab
   - Filters: Academic year=2016, Term=Fall 2015, Spring 2016, Dept. Name=___, Course Division=Lower division
   - Scroll down to “Completion Rates” to see the median course completion rate (right side of screen in red or green font).
   - Record that number in a spreadsheet.

2. Download the course-level completion rate data.
   - Students tab
   - Filters: Same as step 1
   - Scroll down to “Completion Rates”
   - Hover near the top of the "Bottom 30 Courses by Course Completion Rate" until you see a small arrow
   - Click on the arrow and select "Download as xlsx" to download in Excel. Don’t be concerned if there are fewer than 30 courses on the list. This is because there were fewer than 30 lower division courses offered in that department for the time period you’re looking at.

3. Clean up the data in Excel
   - In excel, clean up the data so it resembles the tables in the example spreadsheet (you will have to do a “paste special” to swap the rows and columns)
   - You can choose to restrict your graph to courses that fall below the median completion rate, or you can include all of the courses.

4. Plot the data on a scatterplot
   - Recreate the graph using Excel’s combo graph feature (stacked bars + lines).

**NOTE:** If you don’t want to do that much work in excel, you can simply download APS’s "Bottom 30" graph as an image file. The drawback is that you can’t view the exact completion rates for each, but you can still see which courses have the lowest completion rates and the largest number of students, which what we’re really looking for.
6. Drilling Down to the Course / Section Level (Example Course)

Example 231 (3 credits)
66 sections of Example 231 were offered in AY16.
Average section enrollment was 30 students (range = 19 to 57).
Completion rates ranged from 36% to 87%.
APS Tutorial #3: Finding Section-level Data

Steps to create a section-level histogram or bar chart:

1. Download the section data for the course
   - Students tab
   - Filters: Academic year=2016, Term=Fall 2015, Spring 2016, Dept. Name=__, Course Division=Lower division
   - Scroll down to "Course Completion" to and find the table labeled "Courses with the Highest Unearned Credit Hours"
   - Find the course you’re looking for and click on it. A window will appear.
   - In the window, click on the little grey arrow and select "Download at Excel XLSX."

2. Format the data in Excel
   - Clean up the data in excel.
   - If you want, you can calculate the number of students in each section by dividing “attempted credits” by 3 or 4, depending on the credit value of the course.
   - If it’s a course with a large number of sections, you may want to create a color-coded list to highlight under-performing sections (e.g., sections with completion rates lower than the average for the course could be highlighted in red.)

3. Plot the data on a histogram or bar chart
   - If it’s a course with a large number of sections, it may make sense to create a histogram.
   - If it’s a course with a smaller number of sections, you can create a simple bar chart showing the completion rate for each section.
APS Tutorial #4: Analyzing Section-level Data

1. Download and format the data for the course you’re interested in (see previous slide).

2. Look into potential root causes for the differences across sections. Potential root causes include:
   - Differences in course delivery method (i.e., online vs. in-person)
   - Differences in the types of students who enroll in certain sections.
   - Differences in instructors’ grading practices.
   - Differences in instructors’ teaching practices (e.g., syllabus, textbook used, instructional techniques, etc.).

3. Identify and implement strategies to improve completion rates overall and to reduce any inequitable disparities across sections.
   - Potential strategies depend on the root causes, but could include the following:
     ➢ Establish an “instructor learning community” for the course that works together to establish shared norms and expectations, and to discuss teaching techniques.
     ➢ Establish a committee to redesign the course based on best practices. Ensure that the course is taught in a standardized way across sections. (Similar to the first suggestion, but more prescriptive.)
     ➢ Offer (or offer more) supplemental instruction (i.e., tutoring).

4. Assess outcomes over time and adjust strategies as needed.
What we’ve learned:

• We can use APS to look for variation in completion rates across...
  ➢ Departments
  ➢ Courses
  ➢ Sections

Next steps:

• Drill down on other departments, courses, and sections of interest.

• Ask Amanda to provide additional section-level data from UWM’s Data Warehouse (e.g., day/time, instructor name, online vs. in-person, etc.).

• Think about ways to improve course-level completion rates and equity across sections.
Questions? Please contact us.

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