



# Data and Decisions® Academy Course Descriptions

## Data Management

This course introduces the concepts of data and databases, where to find them on college campuses, and how to use them effectively.

### Core Lessons

**Data Fundamentals**

**Data Sources**

**Issues of Data Use**

### Task Modules and Exercises

#### **Measuring Student Success**

Demonstrates how to find data, clean and edit data, examine file structures and merge data files to identify and report information on student success.

#### **Enrollment and Completion**

Teaches skills in finding data, using subsets to create cohort files, and using multiple files for analysis.

#### **Retention Rates**

Examines student enrollment sequences and retention; joining and merging datasets; understanding file structures; using subsets to create cohort files and using multiple files for analysis.

#### **Program Assessment**

Demonstrates using data for program assessment or program evaluation.

#### **Student Progression and Program Success**

Demonstrates the use of data to evaluate student progress and success in developmental programs.

#### **Completions**

Demonstrates how to use data to provide a profile of completers.

### Knowledge & Skills Taught

- Elements of a database
- Basic database terms
- Data processes and IR-related issues
- Understanding file structures
- Dealing with duplicate records
- Using multiple files
- Checking, editing and cleaning data
- Sorting and filtering data
- Appending data
- Merging data sets
- Recoding data
- Creating subsets for cohort analysis
- Creating crosstabs in Excel
- Creating formulas in Excel
- Importing Excel files into Access
- Exporting files from Access to Excel
- Joining data sets in Access by primary key
- Designing queries in Access
- Using the Vertical Lookup function in Excel to combine data sets
- Combining data from multiple data sets



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## Longitudinal Tracking for Institutional Research

This course provides an overview of longitudinal tracking of students, a research approach that examines or observes the same set of students over time to learn about the effects on one or more study variables.

### Core Lessons

**Fundamentals of Longitudinal Tracking**  
**Designing a Longitudinal Research Study**  
**Preparing Data for Longitudinal Analysis**

### Task Modules and Exercises

#### **Retention, Graduation and Persistence Rates**

Demonstrates how to determine retention, graduation and persistence rates – common indicators of student success.

#### **The Developmental Climb**

Examines student progression from one level of remedial math to the next and from developmental to college-level courses.

#### **Enrollment Patterns**

Examines how student success interventions effect student success in subsequent academic terms and demonstrates how to appropriately conduct analysis and interpret the results.

#### **Tracking Student Success**

Examines how to measure the effect of an intervention on student persistence.

#### **Course Sequence Patterns**

Examines student progress through developmental math course sequences over multiple terms.

#### **Designing a Retrospective Study**

Demonstrates how to design a retrospective longitudinal tracking study in order to develop the profile of successful students.

### Knowledge & Skills Taught

- Developing a research question
- Use of a data dictionary
- Combining multiple data sets
- Checking, editing and recoding data
- Sorting and filtering data
- Creating subsets
- Recoding and collapsing data
- Creating pivot tables (frequency counts) in Excel
- Creating formulas in Excel
- Importing and exporting files between Excel and Access
- Joining data sets in Access by primary key
- Designing queries in Access
- Summarizing data
- Interpreting results
- Creating effective visual displays of data

## Foundational Statistics for Decision Support

This course provides the foundation of statistical analysis, focusing solely on descriptive statistics and the use of statistics in institutional research.

### Core Lessons

**Characteristics of Variables**

**Summaries of Data I**

**Summaries of Data II**

### Task Modules and Exercises

#### **Describe the Respondents**

Uses descriptive statistics to examine survey data to determine the demographics of survey respondents.

#### **Summarize an Issue with Missing Data**

Demonstrates techniques and strategies for dealing with missing data.

#### **Summarizing Categorical Data**

Uses categorical data to examine student learning profiles (number of students per major, identifying the most popular major, and the demographics of students within that major).

#### **Working with Survey Data – Student Retention**

Demonstrates how to use survey data to look at student retention patterns.

#### **Interpreting Data Appropriately**

Demonstrates how to run basic descriptive statistics in Excel; using mean, median and mode to examine and explain a particular variable.

#### **Benchmarking**

Demonstrates how to use descriptive statistics to analyze benchmark data and arrive at conclusions.

### Knowledge & Skills Taught

- Understanding mean, median, mode
- Understanding standard deviation
- Using the data dictionary
- Dealing with missing data
- Sorting and filtering data
- Recoding data
- Identifying key variables
- Analyzing variable relationships
- Preparing descriptive statistics in Excel
- Using the Excel Analysis Tool Pack
- Combing data from multiple data files
- Creating a cross-tabulation table
- Creating a histogram
- Creating a box and whisker plot
- Creating pie charts
- Creating bar charts
- Benchmarking

## Introduction to Learning Outcomes

This course explores the development and use of well-articulated learning outcomes to generate meaningful data.

### Core Lessons

**Developing Intended Learning Outcomes**  
**Assessing Student Learning Outcomes**  
**Using Assessment Data for Decisions**

### Task Modules and Exercises

#### **Writing Intended Learning Outcomes for Individual Courses**

Explores techniques and tips for writing intended learning outcome statements for individual courses.

#### **Intended Learning Outcomes at the Institutional and Program Level**

Explores the development of institutional and program-level outcomes by aligning course-level outcomes with the mission, vision, core values, goals and strategies of the program and/or institution.

#### **Exit Test Analysis**

Demonstrates how to measure student learning gains by analyzing and interpreting exit test results.

#### **Pre-and Post-test Evaluations**

Demonstrates how to evaluate results for pre- and post-tests to assess learning gains.

#### **Portfolios for Learning Assessment**

Demonstrates the use of student portfolios to assess evidence of student learning.

#### **Using Proxy Measures**

Demonstrates the use of indirect measures of student learning to support direct measures and inform decisions.

### Knowledge & Skills Taught

- Understanding and differentiating cognitive, affective and psychomotor learning domains
- Characteristics of outcomes statements
- Writing action-oriented statements
- Understanding direct and indirect evidence of student learning
- Developing measurable outcomes
- Identifying and articulating measurable and observable skills, behaviors or dispositions
- Analyzing and interpreting exit test results
- Calculating learning gains by using pre- and post-test analysis
- Using portfolios as repositories of student learning
- Using portfolios as tangible evidence of student learning
- Using proxy measures in analysis
- Compiling proxy measures of student learning
- Comparing characteristics of a sample with the population
- Using practical significance in analysis

## Designing IR Research

This course examines principles of effective research design for both qualitative and quantitative studies, and their application for institutional research.

### Core Lessons

**Introduction to Qualitative Research**  
**Exploring Quantitative Methods**  
**Successful Research Design**

### Task Modules and Exercises

#### **Focus Groups**

Provides an overview of the use of focus groups in institutional research.

#### **Interviews**

Examines the types and uses of interviews in qualitative research.

#### **Surveys**

Demonstrates survey planning, sampling concepts, questionnaire design, and survey data processing and analysis.

#### **Using Cross-Sectional Data**

Demonstrates how both quantitative and qualitative research methods can be applied to cross-sectional data.

#### **Using Time Series and Longitudinal Data**

Demonstrates the types and uses of time series and longitudinal studies to inform institutional planning and decisions.

#### **Benchmarking**

Demonstrates how benchmarking is used in institutional research to develop dashboards and balanced scorecards.

### Knowledge & Skills Taught

- Concepts of focus group research
- Procedures for conducting focus groups and interviews and using the results
- Developing effective focus group prompts
- Types and uses of questions in focus groups, surveys and interviews
- Conversational vs. structured interviews
- Uses of field notes, methodology notes and theoretical notes in research design
- Fundamental steps for survey implementation
- Using cross-tabs for reporting survey results
- Understanding the types and uses of cross-sectional studies
- Advantages and disadvantages of time-series and longitudinal data
- Using statistical tests with time series data
- Types and uses of benchmarking
- Types and uses of dashboards and scorecards

## Overview of Survey Design

This course provides tools and techniques for conceptualizing, designing and administering surveys at the community college.

### Core Lessons

**Understanding the Survey Process**  
**Core Concepts of Survey Design**  
**Implementing a Survey**

### Task Modules and Exercises

#### **Survey Item Design**

Explores the different types of surveys appropriate for IR and how and when to use them.

#### **Developing Response Options**

Identifies different survey response options and how to select which option to use, along with how to write effective response options that will provide the best possible data.

#### **Piloting a Survey**

Explores how to pilot a survey instrument, and how to use the feedback to improve the survey.

#### **Documenting the Survey Process**

Demonstrates the methods and reasons for documenting the survey process and examples of good documentation.

#### **Evaluating Survey Data**

Explores how to determine whether collected survey data is valid, reliable and usable.

#### **Interpreting Survey Results**

Examines common methods used to interpret survey results, and how to prepare and report the results.

## Knowledge & Skills Taught

- Survey item construction
- Types and uses of survey questions
- When and how to use a Likert Scale
- Effective use of ranking and scaled options
- Effective uses of rating and closed-end questions
- General guidelines for survey design
- Types and uses of response options
- Using cognitive interviews and focus groups for pilot testing
- Steps for conducting an effective pilot study
- Analyzing pilot study data
- Using crosstabs and frequency counts in survey analysis
- Using descriptive statistics to summarize survey results
- Developing key components of a survey codebook
- Effective visual reports
- Understanding counts and response rates
- Understanding sampling and sampling error



# Data and Decisions® Academy Course Descriptions

## Student Success Through the Lens of Data

This course explores the effective use of data to improve student success. Designed for teams of three-to-five administrators, the intended audience includes those who plan, implement, and evaluate programs and services aimed to foster greater success among community college students.

### Core Lessons

**Data 101 – A Basic Introduction to Data and Research**  
**Transforming Data into Information**  
**Preparing Data for Longitudinal Analysis**  
**The Achieving the Dream™ Approach to Student Success**

### Task Modules and Exercises

#### **Urban Legends**

Explores uses of data to assess urban legends about student success and presents a process that colleges can use to identify truth and myth.

#### **Data Definitions**

Explores common definitions of variables associated with student success, and issues and nuances related to variable definitions.

#### **Data Access and Availability**

Explores data access and availability. Questions explored include: What data are collected, by whom, and from what sources; where data are stored; and who has access to the data?

#### **Using Data Within a Culture of Evidence**

Demonstrates how to use data within a culture of evidence including how to identify barriers to success, diagnose probable causes of barriers, choose and implement a strategy to address barriers, and evaluate results.

#### **Snapshots of Student Success**

Explores how to use “snapshot” data from a single year to identify opportunities to improve student success.

#### **Using Longitudinal Data to Improve Student Success**

Demonstrates how to use longitudinal data to analyze student enrollment patterns and identify opportunities to improve student completion rates.

### Knowledge & Skills Taught

- Using longitudinal tracking of cohorts to explore enrollment patterns and completion rates
- Examining snapshot data
- Key steps for data-informed decision-making
- Understanding the definition, collection, source, storage and access for and of data
- Identifying key variables used in student success analysis
- Sorting and filtering data
- Uncovering and testing urban legends
- Using qualitative and quantitative data to evaluate student success
- Understanding and using operational and narrative definitions