2009 Catalog of Citilabs Training Courses

Courses that help you get more from your software investment

Citilabs is pleased to offer a full array of training courses designed to help you learn more about Cube and get more from your software investment, no matter what your current level of expertise.

There are four categories of courses:

- Basic Training — Courses that introduce you to the core Cube modules, Cube Base and Cube Voyager. See page 1.

- Advanced Training — Courses that teach you more advanced topics with Cube Base and Cube Voyager. See page 3.

- Niche Training — Courses that teach you about other Cube modules. See page 5.

- Special Course — Specially arranged course with limited availability. See page 8.

Basic Training

These courses introduce you to the core Cube modules, Cube Base and Cube Voyager:

Scenario Analysis, Editing, and Mapping with Cube

A one-day course that introduces you to Cube's basic model-applier tasks: developing data, running scenarios, and analyzing results. This course is designed for both those who apply existing Cube models to ongoing studies and those interested in learning more about Cube Base's graphical user environment and integrated geographic information system (GIS).

Attendees will learn:

- Best practices for setting up and running model scenarios

- How to prepare input road networks, transit systems, and junction data

- How to inspect, analyze, and compare model outputs

- How to create standard GIS maps to communicate and share results with others

Software used: Cube Base

Prerequisites: None

Application Development with Cube Base

A one-day course that teaches you how to develop a model using Cube Base's graphical user environment. In this course, you will use Application Manager to define model processes with a visual flow chart, and Scenario Manager to manage data associated with different forecast alternatives. Class exercises will use "process templates" that supply predefined modeling operations without requiring in-depth scripting.

Attendees will learn:

- How to manipulate networks, text format data, and matrices using Cube program modules

- How to add, link, and sequence programs to create reusable applications

- How to create nested application groups and define process flow logic controls

- How to create model catalogs and set up scenario-specific application parameters

Software used: Cube Base

Prerequisites: None

Travel Demand Forecasting with Cube Voyager

A one-day course that introduces you to using the Cube Voyager scripting language to automate common data-manipulation and travel-demand modeling tasks. This course is designed for model developers interested in learning about Cube scripting fundamentals and for those new to travel demand modeling and forecasting.

Attendees will learn:

- Basic syntax and structure of Cube Voyager script commands

- Best practices and techniques for editing Cube Voyager scripts

- How to automate common network, matrix, and other data manipulation tasks

- How to build a standard four-step travel demand forecasting model in Cube Voyager, including trip generation, trip distribution, mode choice, and assignment

Software used: Cube Voyager

Prerequisites: None

Advanced Training

These courses teach you more advanced topics with Cube Base and Cube Voyager:

Advanced Modeling and Scripting Techniques with Cube Voyager

A two-day course that provides a comprehensive, in-depth overview of the Cube Voyager scripting language. This course presents techniques analysts can use to construct virtually any type of transportation model, including activity-based models and discrete, dynamic, disaggregate forecasting systems. This course is designed for those already familiar with Cube Voyager who are interested in tips and tricks that will improve their efficiency and expand their capabilities.

Topics covered include:

- Scripting tips, tricks, and techniques to maximize efficiency and automate tasks
- Multi-value lookup functions and relational database processing techniques
- Advanced highway network traffic assignment methods
- Multi-path and capacity-constrained public transit assignment

Software used: Cube Voyager

Prerequisites: Travel Demand Forecasting with Cube Voyager or equivalent experience

Integrating Geodatabases and GIS with Cube 5

A two-day course that provides a comprehensive, in-depth overview of the tools and features in Cube 5 that allow you to integrate transportation modeling and geographic information systems. This course is designed for Cube users who are interested in storing their model data in geodatabases and using ArcGIS-based techniques to edit data and create maps.

Attendees will learn:

- How to designing and build geodatabases for transportation planning applications
- How to developing and maintain data using the integrated Cube 5 GIS window
- How to create standardized style settings, themes, and maps to share with others
- How to perform spatial analysis on-screen and within models using geoprocessing tools

Software used: Cube Base 5 with ArcGIS engine 9.3

Prerequisites: Scenario Analysis, Editing, and Mapping with Cube with Cube or equivalent experience

Niche Training

These courses teach you about other Cube modules:

Introduction to Cube Reports

A one-day course that teaches you how to use Cube Reports to easily create tables, charts, and cross tabulations of input and output data from models and simulations. Cube Reports lets you create high-quality charts and tables of single or multiple scenarios, simplifying the analysis of model results and enabling you to convey the results to decision makers and the general public.

Attendees will learn:

- How to build presentation-quality chart and table graphics, including pie and bar charts, histograms, line graphs and scatter plots, and tables and cross-tabulations.

- How to generate reports automatically from existing scenario runs

- How to develop standard reports with templates

- How to access and format data into dynamic information

- How to build end-user interaction into reports

- How to associate data with reports for easy maintenance

- How to integrate reports easily and efficiently

Software used: Cube Base 5, Cube Reports

Prerequisites: Application Development with Cube Base or equivalent experience.

Distributed Processing with Cube Cluster

A one-day course that teaches you how to use Cube Cluster to reduce model run time. You can use Cube Cluster commands within Cube Voyager script files to distribute model processes across available computer processors and improve model run-time performance.

Attendees will learn:

- Concepts behind Cube Cluster

- How to developing a strategy for "clusterizing" a model

- How to implement Cube Cluster script commands

- How to optimize Cube Cluster

Software used: Cube Base 5, Cube Voyager, Cube Cluster

Prerequisites: Application Development with Cube Base and Travel Demand Forecasting with Cube Voyager or equivalent experience.

Matrix Estimation with Cube Analyst

A one-day course that provides you an overview of Cube Analyst's capabilities, features, and potential applications. You can use Cube Analyst to estimate new origin-destination trip matrices or to update previously acquired matrices using a wide variety of data, such as observed link volumes or counts.

Attendees will learn:

- General concepts and theory of matrix estimation

- How to prepare input data for Cube Analyst using Cube Voyager

- How to structure Cube Analyst runs for optimum performance

- How to use trip matrix information in forecasting models

Software used: Cube Base 5, Cube Voyager, Cube Analyst

Prerequisites: Application Development with Cube Base and Travel Demand Forecasting with Cube Voyager or equivalent experience.

Dynamic Traffic Assignment with Cube Avenue

A one-day course that teaches you how to use Cube Avenue, the Cube Voyager extension that supports dynamic traffic assignment (DTA) and mesoscopic simulation. Useful for both small subregions and large-scale urban networks, Cube Avenue provides highway assignment results that offer greater details, enabling you to analyze temporal variations during peak periods, entire days, or multiple days.

Attendees will learn:

- How to code input data representing transportation supply and demand

- How to set up or modify existing Cube Voyager scripts to apply Cube Avenue

- How to simulate, calibrate, and analyze time-varying traffic flows.

- Simulation visualization techniques, including two-dimensional network animations

- Special scripting techniques for optimizing performance when running large DTA models.

Software used: Cube Base, Cube Voyager, Cube Avenue

Prerequisites: Travel Demand Forecasting with Cube Voyager or equivalent experience.

Integrated Urban Modeling with Cube Land

A one-day course that provides an overview of the concepts, features, and capabilities of Cube Land, an economic land-use-allocation model that you can easily integrate with existing transportation planning models. Given regional demographic forecasts, measures of transport accessibility, and other zonal attributes, Cube Land computes the real estate market equilibrium and provides disaggregate land use totals by TAZ.

Attendees will learn:

- Basic concepts and theoretical background of Cube Land

- Required input data and formatting rules

- How to use Cube Land model parameters

- How to set up and run integrated land-use and transportation scenarios

Software used: Cube Base 5 with ArcGIS engine, Cube Voyager, Cube Land

Prerequisites: Scenario Analysis, Editing, and Mapping with Cube, Application Development with Cube Base, and Travel Demand Forecasting with Cube Voyager or equivalent experience.

Traffic Microsimulation with Cube Dynasim

A one-day course that teaches you about traffic microsimulation and the tools and techniques you can use to produce detailed operational results and visualizations of traffic flows.

Attendees will learn:

- Theory of traffic microsimulation modeling
- How to organize projects that support analysis of multiple scenarios
- How to build simulations that include roads and pedestrians with the basic tools
- How to create interactive 2D and 3D animations along with numerical output summaries
- How to add transit and rail to a simulation model
- How to properly simulate freeway weaving areas and roundabouts

Software used: Cube Dynasim 2

Prerequisites: None

Special Course

Using Cube for Transit Project Planning and New Starts

A special three-day course that teaches you how to use Cube Voyager's Public Transport (PT) program and incorporate it in a transit model. This course will give you hands-on experience, theoretical understanding, and "best practice" knowledge for transit forecasting and New Starts projects.

Topics covered include:

- PT's modeling logic and capabilities.
- Coding sophisticated public transit systems using Cube Graphics and the Cube GIS window.
- Coding complex transit fare systems and speed capabilities.
- Transit network access development, including walk, transfer, park & ride, and kiss & ride.
- PT's transit-path-building methodologies, including PT's best-path and multi-path functionality.
- Using XCHOICE to develop nested logit models capable of producing Summit data files, and techniques for mode-choice calibration.
- Basic assignment features and more advanced features such as select-link and station-to-station matrix extractions and reporting
- Good practices in transit forecasting consistent with current FTA guidance.

Software used: Cube Base, Cube Voyager

Prerequisites: Application Development with Cube Base or equivalent experience