


















Three-course data analytics series at CCAC's North Campus


1. [DAT-102: Introduction to Data Analytics](#)








Course concept progression




The following table maps course session dates, lesson topics, references, and content links for all three Data Analytics courses in the series.






course	date	wk no.	session links	learning objectives	out-of-class work
DAT-102	Tue 28-Jan-2020	1	<p>Introduction to data analytics</p> <ul style="list-style-type: none">  Course syllabus  Week 1 Station Guide  CCAC Data Analytics AS Overview  CCAC Data Analytics Cert Overview 	<p>TR.102.DS.3.A - Decompose the data analytics field</p> <p>TR.102.DS.1.A - Data Tables - Creating: Create a data table with logically assigned types for each column and a unique identifier for each row</p>	
DAT-102	Tue 4-Feb-2020	2	<ul style="list-style-type: none">  Data structures stations  Data structures home practice  Gephi download  Gephi quick start 	<p>Broadly Classify data analytic artifacts/products/displays (Quant/qual/categorical/textual)</p> <p>TR.102.DS.3.C - Continuous & categorical variables</p> <p>TR.102.DS.3.D - Data structures (list, set, stream, table, graph, tree)</p> <p>TR.102.DS.3.E - Analytic modes: describing, modeling, predicting</p> <p>TR.102.DS.1.B - Data Tables - Converting: Export and import data tables in .xlsx, .ods, .csv formats</p>	



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DAT-102	Tue 11-Feb-2020	3	<ul style="list-style-type: none">  Ida Mae Darsow Interest Inventory Results  Photos of Ida Mae  Non-summary statistics  PDF summary of strip surveys from FA18  Strip survey cloud drive  Quant variable profile Editable  Quant variable profile PDF  Online box plot image creator  Sample strip survey analysis 		<p>Please transfer all of your strip survey data into a spreadsheet with columns for the Strip survey ID, the slicer question response, and the raw spectrum question measurement. Upload your spreadsheet to the cloud drive of strip surveys with the SAME NAME as your strip survey except with "_results" attached to the end. So if your original file name was "eric_stripsurvey.pdf" your results file will be called "eric_stripsurvey_results.ods".</p> <p>If you are a spreadsheet whiz, review the sample strip survey analysis and begin your spreadsheet creation process which we'll continue next week.</p>






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DAT-102	Tue 18-Feb-2020	4	<p>KISS: Non-summary descriptive statistics</p> <p>Phase 0: Ida's whiskers</p> <p>Phase 1: (full group): IQR, Box plots, and outliers</p> <p>Phase 2: (full group): Scaled scores and percentiles</p> <p>Exploration activities:</p> <ol style="list-style-type: none"> 1. 1: Ida's Whiskers 2. 2: Measuring measurement error 3. 3: Slicer-segmented box plot wall strip 4. 4: Displaying categorical data 5. 5: Frequency distribution (Histogram) interpretation 6. 6: Data range and scale categorization <p>Phase 4: (full group): Making sense of a wall of data: figure translations & the high bar of generalization</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;">  instructor post-session notes </div>	<p>Data.quant.1.A: Generate box and whisker plots for categorical and non-categorical data</p>	

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DAT-102	Tue 25-Feb-2020	5	<p>Wrapping up non-summary statistics</p> <ul style="list-style-type: none">  Google drive for box-and-whisker comparison <p>Summary-based descriptive stats: mean and standard deviation</p> <ul style="list-style-type: none">  Distributions playground spreadsheet  Edgewood and swissvale comparison  Frequency master challenge key  Distributions and variance (under const)  Quant profile V.1.0 <p>Phase 1: Spreadsheet play-along: center and spread computation and manipulation</p> <p>Phase 3: Trade-offs and conflicting priorities group exercise</p> <p>Phase 4: Debrief and discussion of normality assumptions in statistical inference</p>		<p>Complete activities 1A - 1K in Chapter 1 of Statistics Notes handout</p> <ul style="list-style-type: none">  Summarizing Data: Ch 1: KEY (PDF)

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DAT-102	Tue 3-March-2020	6	<p>Applying mean, median, and standard deviation</p> <p>Match up the Distribution, stats blocks, box plot, and data source in this file</p> <p>Phase 1: Reviewing key concepts from stats packet & real-time data gathering and analysis</p> <p>Phase 3: Group and dispute exercise: connecting distributions, summary stats, and data-backed claims</p> <p>Phase 4: Internalizing the concept of the standard normal curve</p>	<p>TR.102.DS.6.A - Surveys - Designing:</p> <p>TR.102.DS.6.B - Surveys - Sampling & Administering:</p> <p>TR.102.DS.6.C - Surveys - Analyzing:</p>	
DAT-102	Tue 10-March-2020	7	<p>Sampling!</p> <p>Begin library section sampling, to be continued next week.</p> <p> Sampling mini-projects</p>		<p>Please study the two American Journal of Public Health articles distributed in class. Prepare to dig into their confidence intervals for each sub-population:</p> <ol style="list-style-type: none"> Law Enforcement Agencies' Perceptions of the Benefits of and Barriers to Temporary Firearm Storage to Prevent Suicide (Feb-2019, Am J. Pub Health) by Brooks-Russell, Ashley; Runyan, Carol; Betz, Marian E.; Tung, Greg; Brandspigel, Sara; Novins, Douglas K.  Sociodemographic Correlates of Electronic Nicotine Delivery Systems (ENDS) Use in the US (Sep-2019, Am J. Pub Health), by Spears, Claire Adams; Jones, Dina M.; Weaver, Scott R.; Huang, Jidong; Yang, Bo; Pechacek, Terry F.; Eriksen, Michael P. (2016-2017) 

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DAT-102	Tue 17-March-2020	8	<p>Library samples continued</p> <ul style="list-style-type: none">  Sampling mini-projects  StatKey online data cruncher 	<p>Sampling 1: Implement the process of making an inference about a population parameter from a sample.</p> <p>Sampling 2: Use a statistical package--such as StatKey--to experimentally estimate the standard error of the sampling distribution</p>	<p>Dedicate at least 3 hours to carefully responding to the analysis questions from your library sample. See our sampling module, and choose the library sampling mini-project. Uplod all your work in our cloud drive linked in the module resources. Be sure to generate your own file prefix to ensure grouping of your work when the directory is sorted.</p>
DAT-102	Tue 24-March-2020	9	<p>Opportunity Atlas mini-project: multi-type data policy inquiry</p> <ul style="list-style-type: none">  Exploring the Opportunity Atlas  American factfinder home  American Community Survey Error Rates Explained 		<p>Dig into the Opp Atlas</p> <p>Please complete the exercises 1 and 2 on the Exploring the Opportunity Atlas and upload your results to our shared drive when complete. Be sure to print off the student worksheet (or edit it digitally) linked inside the module.</p> <p><i>Est. Time: 3-ish hours</i></p> <p>The true/false exercise in the student worksheet is very rigorous and worthy of some thought. Dedicating beyond 3 ish hours to this assignment is not intended, so please do not stress about "not finishing". I'd rather you take your time and explore the Atlas than worry about the status of your answers to questions on a worksheet. In other words, the worksheet is our means of familiarity and not meant to be an assignment in its own right.</p>

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DAT-102	Tue 31-March-2020	10	<p>Opp Atlas 2</p> <p> Data-based program evaluation</p>	<p>Out of class:</p> <p>B: Digest PGH Inequality report</p> <p>We will be discussing the data and the sociology behind Pittsburgh's Inequality Across Gender and Race Report issued by the Pittsburgh Gender Equity Commission. Please engage with the report and come prepared with a few insights jotted down related to one or more of these discussion questions.</p> <ol style="list-style-type: none"> 1. Review the study's aggregation of smaller racial subcategories into the "AMLON" category. What are the advantages of this statistical approach? Its limitations? Would there be other ways to aggregation races into smaller categories? 2. Review the Report's focus areas in the section called "Cultivating Livability." Which of these priorities do you believe are most salient at this time in Pittsburgh? Most data-based? Least data-based? 3. Carefully study the comparison methodology in Appendix A. Develop a thoughtful opinion of the author's assertion on page 72, third paragraph which starts: "When outcomes, like grade retention rates, are similar across cities they are likely to be driven more by national policies and factors...". Can you think of any indicator patterns which do not exhibit this behavior? 	
	Tue 7-Apr-2020	-	Spring Break		
DAT-102	Tue 14-April-2020	11	<p>Discussing race and gender data</p>	<p>TR.102.DS.7.A - Experiments - Designing:</p> <p>TR.102.DS.7.B - Experiments - Treatment assignment & Implementing:</p> <p>TR.102.DS.7.C - Experiments - Analyzing:</p> <p>TR.102.Q.10 - Standard errors</p> <p>TR.102.Q.11 - Student's T-tests - Setup</p> <p>TR.102.Q.12 - Student's T-tests - Interpretation</p>	<p>A: Upload anonymized resume</p> <p>If you'd like to contribute your anonymized resume to our mini-workshop next week on 18 NOV, please scrub your name and other ID info (including perhaps business names) from your best copy resume and upload it to this shared drive.</p> <p>C Resume upload</p> <p><i>Start thinking about your final project</i></p> <p> DAT-102 Final project specs</p>

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DAT-102	Tue 21-April-2020	12	<p>Resume quick session</p> <p>Review submitted resumes with our North campus director of Employment Services.</p> <p>Sampling (final) project practice and design</p> <ul style="list-style-type: none">  Experimental design  DAT-102 Final project specs 	1	1
DAT-102	Tue 28-April-2020	13	<p>Visualization best practices</p> <p>Final project concept development</p>	1	1
DAT-102	Tue 5-May-2020	14	<p>FINAL EXAM PERIOD from 6:00 - 8:00 pm</p> <ul style="list-style-type: none">  DAT-102 Final project Board layout  DAT-102 Final project specs  Final project cloud upload 		

Data 201: Data Analytics 1

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