

<p>UNE Academy of Digital Sciences</p> <p>Digital Technology Learning Modules</p> <p>COURSES INCLUDED BELOW</p> <p>050 - Digital Sciences Essentials 062 - Development and Programming Fundamentals 064 - Interaction and Interface Fundamentals 066 - Analysis and Data Fundamentals 068 - Project Management Fundamentals</p>		<p>10/5/2017</p> <p>Session 06-DEC17</p>
<p>050 - Digital Sciences Essentials</p>		
<p>WEEK 1: Orientation</p>		
<p>WEEK 2: 050-A - Design Thinking for Innovation Explore design thinking as a problem solving approach to uncover and evaluate creative opportunities</p>	<p>About 7.5 hours https://www.coursera.org/learn/design-thinking-innovation</p>	<p>Jeanne Liedtka, University of Virginia</p>
<p>Knowledge, Skills, and Practices Covered</p> <p>Successfully identify design thinking and examine what kinds of challenges are best-suited for design thinking</p> <p>Successfully identify mindset for seeing and taking action when opportunity arises</p> <p>Successfully identify disciplines used to explore real-life user problems, look for patterns, and ask "what if?"</p> <p>Successfully identify how to determine which ideas are likely to produce outcomes, and test assumptions.</p>		
<p>WEEK 3: 050-B - Fundamentals of Project Planning and Management Explore key concepts of planning and executing projects, including factors that lead to project success.</p>	<p>About 9 hours https://www.coursera.org/learn/uva-darden-project-management</p>	<p>Yael Grushka-Cockayne, University of Virginia</p>
<p>Knowledge, Skills, and Practices Covered</p> <p>Successfully identify what a project is and isn't</p> <p>Use the steps in developing a project plan</p> <p>Identify, assess, and prioritize project risks</p> <p>Document the execution phase of a project</p> <p>Successfully identify alternative methods for project execution such as Agile, Scrum, and Kanban</p>		
<p>WEEK 4: 050-C - Introduction to User Experience Design Explore process of designing experiences to help people meet their needs in the most effective, efficient, and satisfying manner.</p>	<p>About 5 hours https://www.coursera.org/learn/user-experience-design</p>	<p>Rosa I. Arriaga, Georgia Tech</p>
<p>Knowledge, Skills, and Practices Covered</p> <p>Gather requirements with techniques that are relevant for understanding users and tasks</p> <p>Apply usability constraints to the user requirements to mobile and alternative interfaces</p> <p>Design a prototype to allow rapid testing and feedback</p>		
<p>WEEK 5: 050-D - Programming for Everybody (Getting Started with Python) Learn the basics of programming computers: how to construct a program from a series of simple instructions</p>	<p>About 8 hours https://www.coursera.org/learn/python</p>	<p>Chuck Severance, University of Michigan</p>
<p>Knowledge, Skills, and Practices Covered</p> <p>Understand the "big picture" of programming so you get a "table of contents" for your programming tasks</p> <p>Understand how a program uses the computer's memory to store, retrieve and calculate information</p>		

	<p>Write sequential code that simply runs one line of code after another, and then conditional code where some steps are skipped.</p> <p>Create a reusable function that integrates a series of instructions</p> <p>Create a repeatable loop that integrates a series of instructions to do things over and over</p>	
WEEK 6:	<p>050-E - Business Metrics for Data-Driven Companies Learn the essentials of data science and big data, including concepts in statistics and machine learning, and important terminology used in successful data science projects.</p> <p>Knowledge, Skills, and Practices Covered Describe the structure of a successful data science project Understand how statistics, machine learning, and software engineering are used in data science Know the key terms, tools, and roles in data science</p>	<p>About 3 hours</p> <p>https://www.coursera.org/learn/analytics-business-metrics</p> <p>Daniel Egge, Duke University</p>
WEEKS 6-7:	Review Short Courses	
062 - Development and Programming Fundamentals		
WEEK 1:	Orientation	
WEEK 2:	<p>062-A - Programming for Everybody Learn the basics of programming computers: how to construct a program from a series of simple instructions</p> <p>Knowledge, Skills, and Practices Covered Understand the "big picture" of programming Understand how a program uses the computer's memory to store, retrieve and calculate information Write sequential code that simply runs one line of code after another, and then conditional code where some steps are skipped. Create a reusable function that integrates a series of instructions Create a repeatable loop that integrates a series of instructions to do things over and over</p>	<p>About 8.5 hours</p> <p>https://www.coursera.org/learn/python</p> <p>Chuck Severance, University of Michigan</p>
WEEK 3:	<p>062-B - Python Data Structures Learn core data structures, including lists and dictionaries, to perform increasingly complex data analysis.</p> <p>Knowledge, Skills, and Practices Covered Understand strings and basic data structures, and install Python on your laptop Read, scan, and process real data by exchanging data to and from files Store, organize, and retrieve values from within a single list variable. Store data as key / value pairs in dictionaries, in essence a database in a single variable Use tuples to sort or loop through all of the data in a dictionary.</p>	<p>About 6 hours</p> <p>https://www.coursera.org/learn/python-data</p> <p>Chuck Severance, University of Michigan</p>
WEEK 4:	<p>062-C - Using Python to Access Web Data Learn how to use the Internet as a source of data by scraping, parsing, and reading web data as well as accesses data using web APIs.</p> <p>Knowledge, Skills, and Practices Covered Understand how to use regular expressions to search strings and extract data from strings Understand the protocols that browsers and web applications use to interact with Application Program Interfaces (APIs). Understand how to retrieve and parse XML (eXtensible Markup Language) data. Work with Application Program Interfaces / Web Services using the JavaScript Object Notation (JSON) data format</p>	<p>About 8 hours</p> <p>https://www.coursera.org/learn/python-network-data</p> <p>Chuck Severance, University of Michigan</p>
WEEK 5:	<p>062-D - Using Databases with Python Learn the basics of the Structured Query Language (SQL) as well as basic database design for storing data.</p> <p>Knowledge, Skills, and Practices Covered</p>	<p>About 7 hours</p> <p>https://www.coursera.org/learn/python-databases</p>

	<p>Understand the basics of Object Oriented (OO) patterns and terminology</p> <p>Use the four core CRUD operations (Create, Read, Update, and Delete) of SQL to manage data stored in a database</p> <p>Understand how data is stored across multiple tables in a database and how rows are linked</p> <p>Create code to retrieve and process data and then visualize the data</p>	Chuck Severance, University of Michigan
WEEKS 6-7:	Review Short Courses	
064 - Interaction and Interface Fundamentals		
WEEK 1:	Orientation	
WEEK 2:	<p>064-A - Human-Centered Design - An Introduction</p> <p>Learn techniques for rapidly prototyping and evaluating multiple interface alternatives</p>	<p>About 11 hours</p> <p>Scott Klemmer, University of California, San Diego</p>
	<p>Knowledge, Skills, and Practices Covered</p> <p>Understand ten key principles of good design, including the importance of feedback and helping people recover from errors</p> <p>Determine user needs by integrating observation and interviewing</p> <p>Choose appropriate strategies for rapid prototyping, including storyboarding and mock-ups</p>	<p>https://www.coursera.org/learn/human-computer-interaction</p>
WEEK 3:	<p>064-B - Design Principles - An Introduction</p> <p>Learn fundamental principles of visual design in order to effectively organize and present information.</p>	<p>About 12 hours</p> <p>Scott Klemmer, University of California, San Diego</p>
	<p>Knowledge, Skills, and Practices Covered</p> <p>Demonstrate how to approach manipulation in real interfaces, including mental models and cognition distribution</p> <p>Understand visual and information design, including scale, contrast, pattern, shape, color, typography, and layout.</p> <p>Understand how to design, run, and analyze experiments by testing ideas with people and using what you learn to make them better</p>	<p>https://www.coursera.org/learn/design-principles</p>
WEEK 4:	<p>064-C - Social Computing</p> <p>Learn the major challenges and opportunities for creating online communities through social collaboration</p>	<p>About 7 hours</p> <p>Scott Klemmer, University of California, San Diego</p>
	<p>Knowledge, Skills, and Practices Covered</p> <p>Understand multiple types of social software and how to think about physical collaboration and digital collaboration using the same framework</p> <p>Understand the ways that distance does and doesn't matter, how to design for this reality and how to create technologies that go beyond being present</p> <p>Understand the possibilities and limits of crowdsourcing, including strategies for using crowdsourcing successfully</p>	<p>https://www.coursera.org/learn/social-computing</p>
WEEK 5:	<p>064-D - User Experience: Research & Prototyping</p> <p>Learn the fundamental methods of design research that enable designers to to effectively understand people and the sequences of their actions</p>	<p>About 6 hours</p> <p>Elizabeth Gerber, University of California, San Diego</p>
	<p>Knowledge, Skills, and Practices Covered</p> <p>Understand research methods to identify the ways people's needs, goals, values play out in their day-to-day lives</p> <p>Understand five popular ideation techniques that designers use when they have a problem they want to solve</p> <p>Present actionable insights on data through personas, journey maps, diagramming and the 2x2 matrix</p> <p>Create prototyping forms including storyboards, role-plays, walkthroughs and touch-points</p>	<p>https://www.coursera.org/learn/user-research</p>
WEEKS 6-7:	Review Short Courses	

066 - Analysis and Data Fundamentals		
WEEK 1:	Orientation	
WEEK 2:	066-A - Crash Course in Data Science <i>Learn the essentials of data science and big data, including concepts in statistics and machine learning, and important terminology used in successful data science projects.</i>	About 3 hours Jeff Leek, Brian Caffo, Roger Peng, Johns Hopkins University
	Knowledge, Skills, and Practices Covered Describe the structure of a successful data science project Understand how statistics, machine learning, and software engineering are used in data science Know the key terms, tools, and roles in data science	https://www.coursera.org/learn/data-science-course
WEEK 3:	066-B - Data-driven Decision Making <i>Learn about designing and implement realistic predictive models and reduce uncertainty for decision-makers based on math, statistics, and data</i>	About 8.5 hours Alex Mannella, PwC
	Knowledge, Skills, and Practices Covered Explore essential Excel skills to address typical business situations Use AUC and ROC algorithms to compare and classify data Understand when and how to use "probability" and "entropy" uncertainty metrics Use linear regression measures to forecast future outcomes	https://www.coursera.org/learn/decision-making
WEEK 4:	066-C - Customer Analytics <i>Learn how to better communicate business-relevant implications of data analyses</i>	About 9.4 hours Eric Bradlow, Peter Facer, Raghu Iyengar, Ron Berman, University of Pennsylvania
	Knowledge, Skills, and Practices Covered Streamline analyses and highlights implications using visualizations in Tableau Make visualizations that harness perceptual and cognitive tendencies to convey conclusions directly and clearly Design and present business "data stories" that use business-tested methods and design principles	https://www.coursera.org/learn/wharton-customer-analytics
WEEK 5:	066-D - Introduction to Big Data <i>Learn about the use of relational databases in business analysis</i>	About 14 hours Ilkay Altintas, Amarnath Gupta, University of California, San Diego
	Knowledge, Skills, and Practices Covered Use entity-relationship diagrams to display the structure of data Use query and table aggregation statements for business analysis Summarize rows of data using aggregate functions Combine and manipulate data from multiple tables	https://www.coursera.org/learn/big-data-introduction
WEEKS 6-7:	Review Short Courses	
068 - Project Management Fundamentals		
WEEK 1:	Orientation	
WEEK 2:	068-A - Initiating and Planning Projects <i>Learn the key roles and responsibilities of the project manager and project team.</i>	About 5 hours Margaret Meloni, University of California, Irvine
	Knowledge, Skills, and Practices Covered Identify the key characteristics of a project, including roles and responsibilities of the project manager and project stakeholders Understand the use of a project charter and Work Breakdown Structure Identify common sources of conflict within a project environment	https://www.coursera.org/learn/project-planning

	<p>WEEK 3: Note: Complete TWO short Courses by the end of this week</p> <p>068-B1 - Budgeting and Scheduling Projects Learn how to develop a project budget and schedule in order to ensure the success of your projects.</p> <hr/> <p>Knowledge, Skills, and Practices Covered</p> <p>Decompose work packages into activities and identifies the resource needs of the project Estimate activity durations and quantities and costs of resources Create a network diagram, determines the critical path, and defines milestones</p> <hr/> <p>068-B2 - Managing Project Risks and Changes Learn how to identify, analyze, and communicate inevitable changes to project scope and objectives.</p> <hr/> <p>Knowledge, Skills, and Practices Covered</p> <p>Learn how to identify, analyze, and communicate inevitable changes to project scope and objectives Define components of a communications management plan for reporting project scope, schedule, and cost performance. Identify, prioritize, and respond to project risk events Identify and analyze changes to project scope</p>	<p>About 3 hours Margaret Meloni, University of California, Irvine</p> <p>https://www.coursera.org/learn/schedule-projects</p> <p>About 2.5 hours Margaret Meloni, University of California, Irvine</p> <p>https://www.coursera.org/learn/project-risk-management</p>
	<p>WEEK 4: 068-C - Getting Started: Agile Meets Design Thinking Learn how to determine and define user value through testable narratives and shared perspective.</p> <hr/> <p>Knowledge, Skills, and Practices Covered</p> <p>Explain key concepts and practices from the agile product development methodology Create a strong shared perspective and drive to value using personas and problem scenarios Facilitate narrative collaboration with user stories and prototypes</p>	<p>About 13 hours Margaret Meloni, University of California, Irvine</p> <p>https://www.coursera.org/learn/uva-darden-getting-started-agile</p>
	<p>WEEK 5: 068-D - Running Design Sprints Learn how to run situation-appropriate sprints, whether testing for user motivation, interface usability, or solution fit</p> <hr/> <p>Knowledge, Skills, and Practices Covered</p> <p>Plan and conduct a design sprint that delivers valuable, actionable insights Effectively test motivation and value propositions Effectively test user interface (even without working software) Focus and drive to actionable conclusions on questions of approach and architecture</p>	<p>About 12.5 hours Margaret Meloni, University of California, Irvine</p> <p>https://www.coursera.org/learn/running-design-sprints</p>
	<p>WEEKS 6-7: Review Short Courses</p> <p>University of New England Academy of Digital Sciences CC-BY-SA</p>	