# Course Description

Future-focused exploration of learning technology, gathering and using data to drive instructional improvement, and evaluation of educational programs.

**University Learning Outcomes (ULO)**

* **ULO1**: Knowledge of Human Cultures and the Physical and Natural World
* **ULO2**: Intellectual and Practical Skills
* **ULO3**: Personal and Social Responsibility
* **ULO4**: Integrative and Applied Learning
* **ULO5**: Immersed in the Critical Concerns of the Sisters of Mercy of the Americas

# Program Learning Outcomes (PLO)

* **PLO1:** Articulate an educational organization's mission, goals, and guiding principles that distinguish the organization from others. (ULO1, 4)
* **PLO2:** Understand the foundational base of organizational theory, and demonstrate the ability to bridge theory and practice. (ULO1, 2, 4)
* **PLO3:** Given scenarios of conflict, choose ethical courses of action consistent with Gospel values. (ULO3, 5)
* **PLO4:** Synthesize and analyze data to reveal relations and causality, and convert raw data into actionable information. (ULO2, 4)
* **PLO5:** View problems and challenges through the lens of a scientist, seeking evidence-based conclusions. (ULO1, 2, 4)
* **PLO6:** Practice and model steward leadership in transforming organizations to better serve all constituents. (ULO3, 4, 5)
* **PLO7:** Demonstrate facility in the application of technology to solve problems, analyze and synthesize data, and manage information. (ULO1, 2, 4)

# Course Learning Outcomes (CLO)

* **CLO1**: Evaluate new and emerging information and communications technologies designed to improve academic achievement and performance.
* **CLO2**: Explain how to apply data to the organizational decision making process.
* **CLO3**: Explain how project planning and evaluations systems are used to improve student learning.
* **CLO4**: Evaluate and analyze data to support educational and academic improvement.
* **CLO5**: Create recommendations for program improvement based upon an analysis and evaluation of a data set.

**Student Expectations**

Students are expected to:

* ask probing and insightful questions related to course content.
* make meaningful and relevant connections and application to their own learning process.
* be productive and contributing members of class discussions.

# Required Course Materials

Lohr, S. (2015). *Data-ism: Inside the big data revolution*.

ISBN: 978-0-06-222-681-5

Tapscott, D. (2009) *Grown up digital: How the net generation is changing your world*. New York: McGraw-Hill

ISBN: 978-0071508636

# Suggested Point Values

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Assessment** | **Point Value** | **Due** |
| **Week 1** | |  |  |
|  | Participation | 1 | <insert due date> |
|  | Discussion: Information and Communications Technology | 3 |  |
|  | Discussion: Identifying Data Sets | 3 |  |
|  | Peer Review Team: Introductions and Technology | 4 |  |
|  | Journal: Emerging Technology and Using Data | 3 |  |
|  |  |  |  |
| **Week 2** | |  |  |
|  | Participation | 1 |  |
|  | Journal: Improving Lives with Data | 3 |  |
|  | Peer Review Team: Research Questions and Data Sets | 4 |  |
|  | Capstone Assignment: Research Questions | 3 |  |
|  |  |  |  |
| **Week 3** | |  |  |
|  | Participation | 1 |  |
|  | Discussion: Identifying Useful Data Sets | 3 |  |
|  | Journal: Official and Unofficial Metrics | 3 |  |
|  | Capstone Assignment: Designing Metrics for Program Evaluation | 3 |  |
|  | Capstone Assignment: Selecting a Data Set | 3 |  |
|  |  |  |  |
| **Week 4** | |  |  |
|  | Participation | 1 |  |
|  | Peer Review Team: Choice of Data Set and Designing Metrics | 4 |  |
|  | Capstone Assignment: Organizing the Data Set | 3 |  |
|  | Capstone Assignment: Creating Visuals for your Data Set | 3 |  |
|  |  |  |  |
| **Week 5** | |  |  |
|  | Participation | 1 |  |
|  | Peer Review Team: Organizing the Data Set and Creating Visuals for your Data Set | 4 |  |
|  | Discussion: Data Analysis | 3 |  |
|  | Capstone Assignment: Mapping the Research Question to the Data | 3 |  |
|  | Capstone Assignment: Building a Hypothesis | 3 |  |
|  |  |  |  |
| **Week 6** | |  |  |
|  | Participation | 1 |  |
|  | Peer Review Team: Mapping the Research Question to the Data and Building a Hypothesis | 4 |  |
|  | Peer Review Team: Analysis and Presentation | 4 |  |
|  | Capstone Assignment: Data-Driven Recommendations | 3 |  |
|  |  |  |  |
| **Week 7** | |  |  |
|  | Participation | 1 |  |
|  | Peer Review Team: Final Capstone Assignment | 4 |  |
|  | Final Capstone Assignment | 20 |  |
|  |  |  |  |
| **Total Points** | | **100** |  |

# Course Schedule

|  |  |  |
| --- | --- | --- |
| **Week** | **Start** | **End** |
|  |  |  |
| One | <insert start date> | <insert end date> |
| Two |  |  |
| Three |  |  |
| Four |  |  |
| Five |  |  |
| Six |  |  |
| Seven |  |  |

# Weekly Learning Modules

|  |  |  |  |
| --- | --- | --- | --- |
| Week One: Data and Modern Information and Communications Technology | |  | |
| ***Learning Objectives*** | | ***Alignment*** | |
| * 1. Evaluate the usefulness of data sets as an organizational improvement tool. | | CLO2, CLO4 | |
| * 1. Distinguish between data and noise. | | CLO2 | |
| * 1. Evaluate new and emerging information and communications technologies. | | CLO1 | |
| ***Required Learning Resources and Activities****: Students must complete any resources and activities listed in this section as selected by the instructor.* | | ***Alignment*** | ***Pages/AIE/***  ***Generic*** |
| **Week One Introduction: Data and Modern Information and Communications Technology**  Welcome to EDU 808 Technology, Data, and Program Evaluation! If you are like many leaders, you have a difficult time engaging with data, as well as understanding how to collect and use it, or even why it might be a good idea to do so. This course is designed to lead you through the steps of coming up with questions that can be answered through the analysis of data, and using that data to make decisions that have a positive impact.  This week, you’ll take part in some discussions about technology and data sets and do some journaling about how technology could be used to improve the business, institution, or career track in which you operate. | | N/A | N/A |
| **Weekly Participation and Discussion**  The purpose of the weekly discussions is to provide you with a way to synthesize the concepts presented in this course. Each week, you will respond to the discussion questions with a substantive post of 200–250 words that addresses all the prompts for the question by 11:59 p.m. EST of the listed due date. By the conclusion of each week, Sunday at 11:59 p.m. EST, you will make at least one substantive comment of 100–150 words to three of your classmates’ posts for each assigned discussion question. Your comments must further the discussion by following the RISE Model for meaningful feedback. It is recommended that you check in periodically throughout the week to ensure that you are meeting the participation requirement.  **Review** the [RISE Model for Peer Feedback.](https://static1.squarespace.com/static/502c5d7e24aca01df4766eb3/t/5c4e71ecf950b77130df9756/1548644844456/RISE-Model-Peer-by-Emily-Wray-2018.pdf) | | N/A | N/A |
| **Icebreaker Activity**  **Welcome** to the first week of the course!  **Create** a wall on Padlet (<http://padlet.com/>) to introduce yourself to your classmates.  **Post** images that represent your educational background, your interests and hobbies, what interests you most about counseling, and your professional goals. Include a short description with each photo.  **Post** a link to your Padlet wall to the Icebreaker Activity discussion forum by Thursday.  **Post** feedback on your classmates’ Padlet walls. | | N/A | Presentation: private post, share, and comment = **1 hour** |
| **Tutorial: Information and Communications Technology**    **What does this term mean?**  Information and communications technology (ICT) are advancements that allow for the wide-spread dissemination of information. The most obvious examples of ICT are the Internet and the advancement of smart phones.  **How are we using it in the course?**  ICT is vital to almost every industry and profession. Educators may see that ICT allows them to record their lessons for students across the country, to collaborate world-wide with educators, and ease communications with parents and other stakeholders.  Those in the medical industry know how electronic medical records (EMRs) are changing the way patient information is shared and protected, while e-lessons, simulation programs, and database style programs (like those listing information about prescriptions and generics) are changing the way that medical providers are learning and retaining information about the rapidly changing industry.  **Where can I find out more?**  You can read more information about information technology at the following links:   * The World Bank: Information & Communication Technologies: <http://www.worldbank.org/en/topic/ict/overview> | | N/A | N/A |
| **Week One Reading**  **Read** Ch. 1, 2, and 3 of *Data-ism*.  **Read** the introduction and Ch. 1 & 2 of *Grown Up Digital.*  **Post** any questions or comments about the reading in the Week One Discussion Forum. | | N/A | N/A |
| **Peer Review Team**    Throughout this course, you will be working both individually and in groups to complete a culminating project in which you analyze real-world data in order to reach conclusions that aid in decision-making for an organization.  As part of this effort, you have a Peer Review Team, which will critique and strengthen your ideas, review your writing, and give you support and encouragement throughout the course. Your instructor will assign you to a Peer Review Team by the end of Week One. | | N/A | N/A |
| **Capstone Assignment: Program Evaluation and Recommendations**  In this course, you will analyze a program involving the implementation of a new information and communications technology and construct overarching goals and mission from the available resources in a way that can generate data and allow measurement of the program.  In other words, you’re going to find and evaluate a data set related to a program from within your field of interest and make recommendations based on your analysis of that data.  Examples include:   * *Dropout prevention program* – After three years, how well did we hit the metrics? If we didn’t, why not? How could we change this program to improve it? * *Hospital infection rate* – How many cases of hospital-acquired MRSA occurred in each of the last five years? Has the hospital improved? What has the hospital done to mitigate the infection rate? * *Evaluating the metrics of attrition* – How many students stay in a program over the course of six months? What is the month-to-month enrollment/restart rate? How can the institution encourage or improve retention?   Throughout the course, you will be working with Peer Review Teams to read and review each section of your drafts. You will be expected to read, review, and provide meaningful and complete feedback to all other team members in your Peer Review Team.  **Review** *EDU 808 Capstone Assignment: Program Evaluation and Recommendations* for more details on the deliverables and deadlines in the project. | | N/A | N/A |
| ***Supplemental Learning Resources and Activities****: These resources and activities provide further exploration of content, supplemental information, and skill building. Students may complete items in this section on their own or as selected by the instructor.* | | ***Alignment*** | ***Pages/AIE/***  ***Generic*** |
| **Adobe Connect Live Discussion**  **Participate** in the scheduled live session with the course instructor. This session will provide an overview of the class and discuss the major assignments in the course.  **Prepare** to ask questions concerning the content of the week and the course as a whole.  *Note*: A recorded lecture will be made available to those who are unable to attend the live session. | |  | Live Discussion: lecture and discussion = **1 hour** |
| **Total** |  |  | **1 hour** |
| ***Assignments****: Students must complete the weekly assignment(s).* | | ***Alignment*** | ***Points/AIE/***  ***Generic*** |
| **Discussion: Information and Communications Technology**  **Respond** to the following question in the Information and Communications Technology discussion forum by Thursday:   * What is the state of information and communications technology in your career field/industry? * Cite two examples of how the use of information and communications technology in your career field/industry could improve a program/initiate or could solve a common problem. * How could you tell whether there was improvement or a solution? What would be sufficient as proof?   **Post** constructive criticism, clarification, additional questions, or your own relevant thoughts to three of your classmates' posts by Sunday. | | 1.1 | Discussion: one post and replies to three other posts =  **1 hour** |
| **Discussion: Identifying Data Sets**  **Respond** to the following in the Identifying Data Sets discussion forum by Thursday:   * Identify at least three examples of data sets used in your industry or career field. * For each example, research and locate at least one actual data set of that type. * For each data set, give a brief description of what the data is and its relevance to your industry or career field.   **Post** constructive criticism, clarification, additional questions, or your own relevant thoughts to three of your classmates' posts by Sunday. | | 1.1, 1.2 | Discussion: one post and replies to three other posts =  **1 hour** |
| **Peer Review Team: Introductions and Technology**  **Compose** a 250–400-word summary that includes the following information:   * Brief self-introduction addressed to your Peer Review Team * Description of technologies in your career field that interest you * One thing you hope to learn in this course     **Submit** your summary to the team discussion board titled “Introductions and Technology” by Thursday 11:59 p.m. EST.    **Review** your peer support group members’ submissions.  **Post** additional questions, constructive criticism, clarification, or your own relevant thoughts to all of your peer support group members by Sunday 11:59 p.m. EST. | | 1.1, 1.3 | Discussion: one post and replies to all other posts, reactions to directed posts =  **1 hour** |
| **Journal: Emerging Technology and Using Data**    **Write** a 250–400-word journal entry reflecting on the use of data in real-world environments to improve your work environment and the lives of others.  **Include**:   * A brief description of the environments you live and work in and the data that can be found in them * How the interpretation of relevant data could shape and influence your environments * A reflection on how data can impact people’s lives through leadership interpretations (and decisions)   **Submit** your assignment to your instructor via Blackboard. | | 1.1, 1.2, 1.3 | Journal: one post and feedback from instructor= **30 minutes** |
| **Total** |  |  | **4.5 hours** |

# Faculty Notes

**Textbook Reading Load throughout Course**

This chart contains the breakdown of pages of reading per week in this course. The last few weeks of the course contain no reading, so students may focus on their peer review groups and their Capstone Assignments.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Data-ism | | Grown up Digital | | Total Pages by Week |
| **Chapters** | **Pages** | **Chapters** | **Pages** |
| Week 1 | 1, 2, 3 | 60 | Intro, 1, 2 | 74 | **134** |
| Week 2 | 4, 5, 6 | 62 | 3, 4 | 48 | **110** |
| Week 3 | 7, 8 | 40 | 5, 6 | 64 | **104** |
| Week 4 | 9, 10 | 40 | 7, 8 | 58 | **98** |
| Week 5 | 11 | 24 | 9, 10, 11 | 68 | **92** |

**Peer Review Teams**

**Review** these tutorials on creating student groups:

* Create Groups: <https://en-us.help.blackboard.com/Learn/9.1_2014_04/Instructor/080_Collaboration/050_Course_Groups/030_Create_Groups>
* Create Group Assignments[: https://en-us.help.blackboard.com/Learn/9.1\_2014\_04/Instructor/080\_Collaboration/050\_Course\_Groups/080\_Create\_Group\_Assignments](file:///C:\Users\KatherineMiller\AppData\Local\Temp\%20https\en-us.help.blackboard.com\Learn\9.1_2014_04\Instructor\080_Collaboration\050_Course_Groups\080_Create_Group_Assignments)
* Blackboard Learn Quick Hit Video: Groups Management: <https://www.youtube.com/watch?v=tzt2HTlr68c>

**Complete** the following steps before the course launches:

* Set up Peer Review Teams of 3–4 students.
* Assign students to the group discussion forums.
* Post an announcement identifying the teams by the first day of the session (Monday).

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| --- | --- | --- | --- |
| Week Two: Data-Driven Research | |  |  |
| ***Learning Objectives*** | | ***Alignment*** | |
| * 1. Compose research questions that can be answered with data. | | CLO2 | |
| * 1. Evaluate and analyze data sets. | | CLO2, CLO3, CLO4 | |
| ***Required Learning Resources and Activities****: Students must complete any resources and activities listed in this section as selected by the instructor.* | | ***Alignment*** | ***Pages/AIE/***  ***Generic*** |
| **Week Two Introduction: Data-Driven Research**  This week you will be completing two important steps in your evaluation process: you will be surveying the available data and data sets, and you will be composing research questions. You will likely complete these tasks in tandem—the types of data that are available may dictate the way you structure your research questions. | | N/A | N/A |
| **Week Two Reading**  **Read** Ch. 4, 5, and 6 of *Data-ism*.  **Read** Ch. 3 & 4 of *Grown Up Digital.*  **Post** any questions or comments about the reading in the Week Two Discussion Forum. | | 2.1, 2.2 |  |
| **Resources: Developing Viable Research Questions**  Many novice researchers have some difficulty developing research questions that are viable for actual research. The following resources will guide you in creating research questions that work.  **Review** “Writing a Good Research Question,” available from the Center for Innovation in Research and Teaching: <https://cirt.gcu.edu/research/developmentresources/tutorials/question>  **Read** “Developing Action Research Questions,” located at <http://bb.plsweb.com/AR_NAV/m3/m3topica_key.html>  **View** “T3 - Finding my research question,” available on YouTube [7:49]: <https://www.youtube.com/watch?v=PgUwe0pzB0I>. | | 2.1 |  |
| **Resources: Using Data**  This course focuses on collecting, interpreting, and using data to make decisions about technology and programs at an institutional level. This is an approach that has paid off in big ways in a variety of global industries, as these articles demonstrate.  **Read** the following articles:   * “Can big data improve the lives of people in the developing world?”: <https://www.huffpost.com/entry/how-data-and-analytics-ca_b_5609411> * “3 Keys to using data to improve health systems”: <http://www.weforum.org/agenda/2015/07/3-keys-to-using-data-to-improve-health-systems> * “Andreas Schleicher: Use data to build better schools”: <https://www.ted.com/talks/andreas_schleicher_use_data_to_build_better_schools?language=en> * “Using Data to Improve Student Achievement”: <http://www.ascd.org/publications/educational-leadership/feb03/vol60/num05/Web-Wonders-~-Using-Data-to-Improve-Student-Achievement.aspx> | | 2.1, 2.2 |  |
| **Preparation: Locating Data Sets**  In Week Three of this course, you will be selecting data sets that you can analyze to support the research questions you’ll be drafting this week. The following links include a multitude of resources for finding free and publically available data on a variety of topics.  *Note*: You do not have to review ALL of these resources. Only review resources that are pertinent to your research questions, organization, or field.  **Review** the following resources:   * <https://www.data.gov/> * <https://dev.socrata.com/data/> * <http://www.census.gov/data.html> * <http://datasf.org/> * <http://ropercenter.cornell.edu/> * <https://dataverse.harvard.edu/> * <http://service.re3data.org/search> * <https://www.datacite.org/node> * <https://figshare.com/> * <http://linkeddata.org/> * <http://thewebminer.com/> * <https://datahub.io/> * <https://www.quandl.com/> * <http://www.kdnuggets.com/datasets/index.html> * <http://enigma.io/> * <https://www.cia.gov/library/publications/the-world-factbook/> * <http://www.healthdata.gov/> * <http://aws.amazon.com/datasets/> * <http://open-data.europa.eu/en/data/> | | 2.2 |  |
| ***Assignments****: Students must complete the weekly assignment(s).* | | ***Alignment*** | ***Points/AIE/***  ***Generic*** |
| **Journal: Improving Lives with Data**  **Write** a 250–400-word journal entry reflecting on how data can be used to improve poor outcomes in your industry and in your life.  **Include**:   * What are two explicit examples of ways data could improve poor outcomes? * What types of data would be ideal for these purposes? Explain how they would help. * What are two concrete impacts data could have in your life and vocation?   **Submit** your assignment to your instructor via Blackboard. | | 2.2 | Journal: one post and feedback from instructor=  **30 minutes** |
| **Peer Review Team: Research Questions and Data Sets**  **Compose** a 250–400-word summary that includes the following information:   * At least two possible research questions you have about the technology used in your career field * Data sets that might be related to your draft research questions * Brief descriptions of how the data set might help respond to your research questions     **Submit** your summary to the team discussion board titled “Research Questions and Data Sets” by Thursday 11:59 p.m. EST.    **Review** your peer support group members’ submissions.  **Post** additional questions, constructive criticism, clarification, or your own relevant thoughts to all of your peer support group members by Sunday 11:59 p.m. | | 2.1, 2.2 | Discussion: one post and replies to all other posts, reactions to directed posts =  **3 hour** |
| **Capstone Assignment: Research Questions**  **Compose** *at least* two unique research questions about the effects of a specific information and communications technology applied to your organization/field.  **Respond** to the following questions for each research question you compose:   * What is the information that you will need in order to answer this question effectively? * Which data sets will likely be able to show you whether one of these technologies can improve the performance of YOUR organization?   **Submit** your research questions to your instructor via Blackboard. | | 2.1, 2.2 | Guided project =  **1 hour** |
| **Total** |  |  | **4.5 hours** |

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| Week Three: Program and Project Evaluation | |  |  |
| ***Learning Objectives*** | | ***Alignment*** | |
| * 1. Explain the metrics by which programs and projects may be evaluated. | | CLO1, CLO2, CLO3 | |
| * 1. Design the evaluation metrics for a program or project. | | CLO1, CLO2, CLO3 | |
| ***Required Learning Resources and Activities****: Students must complete any resources and activities listed in this section as selected by the instructor.* | | ***Alignment*** | ***Pages/AIE/***  ***Generic*** |
| **Week Three Introduction**  By answering the research question, you will be able to make a recommendation for a specific technology or type of technology that will lead to improvement, achievement, or increased organizational effectiveness in your field.  This week, you will definitively select the data sets that you will use for your analysis. | | N/A | N/A |
| **Week Three Reading**  **Read** Ch. 7 & 8 of *Data-ism*.  **Read** Ch. 5 & 6 of *Grown Up Digital.*  **Post** any questions or comments about the reading in the Week Three Discussion Forum. | | 3.1, 3.2 | N/A |
| **Resources: Data and Metrics**  **Read** the following:   * “Know the Difference Between Your Data and Your Metrics,” available from the Harvard Business Review: <https://hbr.org/2013/03/know-the-difference-between-yo> * “A Hierarchy of Program Evaluation Metrics”: <http://idealware.org/blog/hierarchy-program-evaluation-metrics> * “Thinking About How to Evaluate Your Program? These Strategies Will Get You Started”: <http://pareonline.net/getvn.asp?v=9&n=8> * *Guidelines for Measuring the Performance of EPA Partnership Programs*: <https://www.epa.gov/sites/production/files/2015-09/documents/guidelines-measuring-epa-partnership-program.pdf> * *Educations’ Guide to Service-Learning Program Evaluation*: <http://archive.wipps.org/media/pdf/Evaluation_Toolkit.pdf> * “Measuring Your Success: Nine Strategies for Successful Program Evaluation”: <http://city.milwaukee.gov/ImageLibrary/Groups/cityDCD/LVP/QualityStandards/NineStrategiesforSuccessfulPro.pdf> | | 3.1, 3.2 | N/A |
| **Resource: Non-Governmental Organizations Developing Metrics and Evaluation**  This resource details how non-governmental organizations develop metrics and evaluate the success and failure of programs.  **Review “**Metrics and Evaluation,” available from Unite for Sight**:** <http://www.uniteforsight.org/metrics-course/monitoring-evaluation>  **Consider** the following questions:   * How close is the described method to your own organization/field? * What differences make the most sense to implement in your own organization/field? | | 3.1, 3.2 | n/a |
| ***Assignments****: Students must complete the weekly assignment(s).* | | ***Alignment*** | ***Points/AIE/***  ***Generic*** |
| **Discussion: Identifying Useful Data Sets**  **Research** data sets from within your field related to the emerging technologies that you identified.   * Find data sets that you identified while composing your research questions. These data sets should be useful for answering the research questions—if they are tangential or unrelated, they are not relevant to this project.   **Select** at least three different data sets related to your research question.  **Respond** to the following prompts in the “Identifying Data Sets” discussion forum by Thursday:   * Briefly explain your proposed research questions. * Describe what sorts of data you hope to find to support your research questions. * Identify at least three potential sources of this data (this can be from the linked resources from this week or from independent research).   **Post** constructive criticism, clarification, additional questions, or your own relevant thoughts to three of your classmates' posts by Sunday. | | 2.1 | Discussion: one post and replies to three other posts = **1 hour** |
| **Journal: Official and Unofficial Metrics**  Oftentimes, a project will be judged on two separate axes: the official metrics, often set forward by a manager or supervisor, and unofficial metrics, the so-called “common sense” metrics by which average people judge the success or failure of a project. For example, an official metric might be the adoption rate of a technology (“Eighty-five percent of nurses will use the technology every day.”), while the unofficial metric might be whether or not the technology makes an individual user’s job easier (“Why are we using this computer system if it’s just more work?”).  **Write** a 250–400-word journal entry reflecting on how people judge and grade the success of projects and initiatives in your industry, in official and unofficial capacities.  **Include** responses to the following questions:   * What are the most common types of official metrics for projects and initiatives? * How do people judge, grade, or rank projects and initiatives in your industry outside of their official capacities? * What differences in values are apparent in the official and unofficial success metrics? * Is there a way you can leverage the “common sense” metrics in your official judgments?   **Submit** your assignment to your instructor via Blackboard. | | 2.1, 2.2 | Journal: one post and feedback from instructor= **30 minutes** |
| **Capstone Assignment: Designing Metrics for Program Evaluation**  **Research** metrics used to evaluate programs in your organization/field as related to your research question.  **Choose** a metric or set of metrics that you can use to evaluate the probable outcome of your research question.  *Note*: If your organization or field already has comprehensive metrics that relate to your evaluation, feel free to select them for use in this project. Don’t re-invent the wheel if you already have it! Please cite any metrics you’ve gathered from your research in your capstone project.  **Write** a 100–150-word evaluation of each metric, explaining how it could be useful to answer your research question, including:   * What the metric actually measures * What a successful outcome would look like * What an unsuccessful outcome would look like * A projection or forecast of the program’s success or failure based on available data   **Submit** this assignment to your instructor via Blackboard. | | 3.1, 3.2 | Guided project =  **1 hour** |
| **Capstone Assignment: Selecting a Data Set**  **Research** data sets from within your field that are related to the emerging technologies that you identified.   * These data sets should be useful for answering the research questions—if they are tangential or unrelated, they are not relevant to this project.   **Select** at least one of these data sets to use to answer your research question.  **Write** a 150- to 250- word rationale explaining why this data set is relevant to your research question and how it will help to respond to the research question.  **Submit** your chosen data set and rationale to your instructor via Blackboard. | | 2.2 | Guided project =  **1 hour** |
| **Total** |  |  | **3.5** |

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| Week Four: Data Organization and Visualization | |  |  |
| ***Learning Objectives*** | | ***Alignment*** | |
| * 1. Filter a data set to uncover relevant patterns and information. | | CLO3, CLO4 | |
| * 1. Present derived data visually for an audience of non-expert professionals. | | CLO3, CLO4, CLO5 | |
| ***Required Learning Resources and Activities****: Students must complete any resources and activities listed in this section as selected by the instructor.* | | ***Alignment*** | ***Pages/AIE/***  ***Generic*** |
| **Week Four Introduction**  This week, you will be learning how to use programs to filter data from your data set so you can uncover patterns and information hidden inside the data. This will allow you to pick out the relevant information from your data set, which you will then consider in light of your audience. This is part of making your data say something—this week, your research and conclusions are going to derive from your data organization and visualization. | | N/A | N/A |
| **Week Four Reading**  **Read** Ch. 9 & 10 of *Data-ism*.  **Read** Ch. 7 & 8 of *Grown Up Digital.*  **Post** any questions or comments about the reading in the Week Four Discussion Forum. | | 4.1, 4.2 | N/A |
| **Resource: Filtering Data**  A filter is a tool that allows you to look at a subset of any data set. By using a filter, we can quickly organize and analyze data related to the questions we have, without having to parse unnecessary information. There are two types of filters for data: tool filters and your judgment.  By using the filters that are programmed into tools like Excel, you can call out subsets of data.  **Review** the following tutorials on using Excel to filter data:   * Microsoft Excel: Filter Data in a Range or Table: <https://support.office.com/en-us/article/Filter-data-in-a-range-or-table-01832226-31b5-4568-8806-38c37dcc180e>   Another great tool that can help you filter data and conduct program evaluations is Microsoft Project.    **Review** the following tutorials on using Microsoft Project**:**   * Project 2013 videos and tutorials:<https://support.office.com/en-us/article/Project-2013-videos-and-tutorials-af7d1e17-5fa7-421f-a452-9bbe2cd7b082?ui=en-US&rs=en-US&ad=US&fromAR=1>   The other type of filtering will be done by you. You are the investigator, trying to answer questions and find enough clues to build a recommendation. Your software tool, no matter how powerful, will not make connections like you can. You have to decide what is important, what to present, how to present it, and you have to anticipate both the benefits and drawbacks of any recommendations that you make.  **Consider** the following questions as you filter your data and think about how to visualize it:   * Where is the signal within this data? What’s really important here? * What can I show people to help them understand my recommendation? * What in the data does not support my recommendation? | | 4.1 | N/A |
| **Resource: Visualizing Data**  **Read** the following articles on data visualization, available at Perceptual Edge:   * “Eenie, Meenie, Minie, Moe: Selecting the Right Graph for your Message”: <http://www.perceptualedge.com/articles/ie/the_right_graph.pdf> * Graph Selection Matrix: <http://www.perceptualedge.com/articles/misc/Graph_Selection_Matrix.pdf>   **Review** the following Excel tutorials, available at Microsoft.com   * [Create a chart](https://support.office.com/en-us/article/Create-a-chart-in-Excel-2016-for-Windows-cd131b77-79c7-4537-a438-8db20cea84c0) * [Create a histogram](https://support.office.com/en-us/article/Create-a-histogram-85680173-064b-4024-b39d-80f17ff2f4e8) * [Add a pie chart](https://support.office.com/en-us/article/Add-a-pie-chart-812DCCCE-9E44-41C6-9091-225C7C3DF3E0) * [Add a trend or moving average line to a chart](https://support.office.com/en-us/article/Add-a-trend-or-moving-average-line-to-a-chart-3c4323b1-e377-43b9-b54b-fae160d97965) * [Available chart types](https://support.office.com/en-us/article/Available-chart-types-in-Office-2016-for-Windows-009130aa-04ce-498f-a934-b8917f2365b3) | | 4.2 | N/A |
| ***Assignments****: Students must complete the weekly assignment(s).* | | ***Alignment*** | ***Points/AIE/***  ***Generic*** |
| **Peer Review Team: Choice of Data Set and Designing Metrics**    **Review** each of the Week Three Capstone Assignment assignments:   * Capstone Assignment: Designing Metrics for Program Evaluation * Capstone Assignment: Selecting a Data Set.   For each project, **write** a brief 100–200-word summary of the assignment, including:   * Content or ideas you are unsure about * Ways you hope to improve the assignment before final submission     **Submit** your summaries and assignments to the team discussion board titled “Research Questions and Data Sets” by Thursday 11:59 p.m. EST.    **Review** your peer support group members’ submissions.  **Post** additional questions, constructive criticism, clarification, or your own relevant thoughts to all of your peer support group members by Sunday 11:59 p.m. EST. | | 3.1, 3.2 | Discussion: one post and replies to all other posts, reactions to directed posts =  **3 hour** |
| **Capstone Assignment: Organizing the Data Set**  When you are organizing data, you are trying to answer some very basic questions in order to determine what data is relevant.  **Review** these questions for helping to filter and organize your data set:   * Who is the audience for the data? * What is the data showing? * Where is the data from? Is it relevant to my purpose? * When is the data situated? In other words, is the data still relevant? * Why is this data valuable to my audience or me? * How can I use this data to answer my research questions?   **Write** a 150–250-word essay in which you answer each of these questions in a narrative fashion (i.e., not a list, but a paragraph or two.)  **Submit** your assignment to your instructor via Blackboard. | | 4.1 | Guided project =  **1 hour** |
| **Capstone Assignment: Creating Visuals for your Data Set**  *Note*: It is assumed you have completed the Organizing Data Set assignment before beginning this one.  **Review** your data set.  **Choose** a minimum of three interesting, relevant, or illustrative examples of data that could be visualized for your audience.  **Create** at least one visual representation of each of your data examples.  **Submit** your assignment to your instructor via Blackboard. | | 4.1, 4.2 | Guided project =  **1 hour** |
| **Total** |  |  | **5 hours** |

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| Week Five: Data Analysis | |  |  |
| ***Learning Objectives*** | | ***Alignment*** | |
| * 1. Analyze a data set to find relevant information pertaining to research questions. | | CLO4 | |
| * 1. Interpret data in relation to a research question. | | CLO4 | |
| * 1. Compose a working theory based on data analysis. | | CLO1, CLO4, CLO5 | |
| ***Required Learning Resources and Activities****: Students must complete any resources and activities listed in this section as selected by the instructor.* | | ***Alignment*** | ***Pages/AIE/***  ***Generic*** |
| **Week Five Introduction**  Next week, you should be finalizing your presentation and analysis for review by your Peer Review Team. You will submit your final capstone assignment to your Peer Review Team in Week Seven, and then to your instructor by Sunday.  As you reflect on your data and the metrics, this week’s assignment moves you into looking at various tools for analysis and presentation. Depending upon your skill set or interests, creating presentations using PivotTables might be easy or it might be difficult. The desire of this course is to enable you to find a tool for presentation and get comfortable with its use. If you can proficiently communicate your data analysis with an Excel Spreadsheet Table, then you have met the course objectives.  If not, then you need to select a technology tool that will. | |  | N/A |
| **Week Five Reading**  **Read** Ch. 9 & 10 of *Data-ism*.  **Read** Ch. 7 & 8 of *Grown Up Digital.*  **Post** any questions or comments about the reading in the Week Four Discussion Forum. | | 5.1, 5.2, 5.3 | N/A |
| **Review: Using Excel to Analyze Data**  **Review** the following tutorials on the data analysis features of Microsoft Excel, available on the Microsoft website:   * [Apply data validation to cells](https://support.office.com/en-us/article/Apply-data-validation-to-cells-29FECBCC-D1B9-42C1-9D76-EFF3CE5F7249) * [Analyze your data instantly](https://support.office.com/en-us/article/Analyze-your-data-instantly-9e382e73-7f5e-495a-a8dc-be8225b1bb78) * [Create a PivotTable to analyze worksheet data](https://support.office.com/en-us/article/Create-a-PivotTable-in-Excel-2016-to-analyze-worksheet-data-c875f798-78cf-49a2-9f79-c842dcdd2869) * [Change, find, or clear conditional formats dialog box options](https://support.office.com/en-us/article/Change-find-or-clear-conditional-formats-dialog-box-options-8A1CC355-B113-41B7-A483-58460332A1AF) * [Create conditional formulas to find data or apply formatting](https://support.office.com/en-us/article/Create-conditional-formulas-to-find-data-or-apply-formatting-5CDFB6A3-75FF-48C3-B11F-C15F9563722D) * [Use the Analysis ToolPak to perform complex data analysis](https://support.office.com/en-us/article/Use-the-Analysis-ToolPak-to-perform-complex-data-analysis-6C67CCF0-F4A9-487C-8DEC-BDB5A2CEFAB6) * [Load the Analysis ToolPak](https://support.office.com/en-us/article/Load-the-Analysis-ToolPak-305C260E-224F-4739-9777-2D86F1A5BD89) * [Define and solve a problem by using Solver](https://support.office.com/en-us/article/Define-and-solve-a-problem-by-using-Solver-5D1A388F-079D-43AC-A7EB-F63E45925040) * [Analyze trends in data using sparklines](https://support.office.com/en-us/article/Analyze-trends-in-data-using-sparklines-be6579cf-a8e3-471a-a459-873614413ce1) * [Use Goal Seek to find a result by adjusting an input value](https://support.office.com/en-us/article/Use-Goal-Seek-to-find-a-result-by-adjusting-an-input-value-EF3495FE-9DDC-4249-89B4-0E24406B7FCB) | | 5.1, 5.2 | N/A |
| ***Assignments****: Students must complete the weekly assignment(s).* | | ***Alignment*** | ***Points/AIE/***  ***Generic*** |
| **Peer Review Team: Organizing the Data Set and Creating Visuals for Your Data Set**    **Review** each of the Week Four Capstone Assignment assignments:   * Capstone Assignment: Organizing the Data Set * Capstone Assignment: Creating Visuals for your Data Set   For each project, **write** a brief 100–200-word summary of the assignment, including:   * Content or ideas you are unsure about * Ways you hope to improve the assignment before final submission     **Submit** your summaries and assignments to the team discussion board titled “Organizing the Data Set and Creating Visuals for your Data Set” by Thursday 11:59 p.m. EST.    **Review** your peer support group members’ submissions.  **Post** additional questions, constructive criticism, clarification, or your own relevant thoughts to all of your peer support group members by Sunday 11:59 p.m. EST. | | 4.1, 4.2 | Discussion: one post and replies to all other posts, reactions to directed posts =  **3 hour** |
| **Discussion: Data Analysis**  **Respond** to the following question in the Data Analysis discussion forum by Thursday:   * How are you attempting to analyze your data? * What is your rationale for this method? * What about this method will help address your research question?   **Post** constructive criticism, clarification, additional questions, or your own relevant thoughts to three of your classmates' posts by Sunday. | | 5.1, 5.2 | Discussion: one post and replies to three other posts =  **1 hour** |
| **Capstone Assignment: Mapping the Research Question to the Data**  **Write** a 250–450-word explanation of your data analysis process, including responses to the following questions:   * What are you evaluating? * How are you evaluating it? * What is the relationship between the research questions and the data set?   **Submit** your assignment to your instructor via Blackboard. | | 5.1, 5.2 | Guided project =  **1 hour** |
| **Capstone Assignment: Building a Working Theory**  Now that you have analyzed your data, you should be ready to start building some conclusions. Before we come up with recommendations for the program, we want to answer an important question: What is the data actually telling us?  **Write** a 250–500-word analysis of the data in which you respond to the following:   * According to the data, what is the likely effect of the proposed program? Why do you think so? * What is your professional reaction to the data? * What is the likely reaction of your audience to the data?   **Submit** your assignment to your instructor via Blackboard. | | 5.3 | Guided project =  **1 hour** |
| **Total** |  |  | **6 hours** |

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| Week Six: Composing Recommendations for Program, Project, and Process Improvement | |  |  |
| ***Learning Objectives*** | | ***Alignment*** | |
| * 1. Evaluate a data-driven recommendation for program, project, and process improvement. | | CLO1, CLO4, CLO5 | |
| * 1. Compose data-driven recommendations for program, project, and process improvement. | | CLO1, CLO4, CLO5 | |
| ***Required Learning Resources and Activities:*** *Students must complete any resources and activities listed in this section as selected by the instructor.* | | ***Alignment*** | ***Pages/AIE/***  ***Generic*** |
| **Week Six Introduction**  This week, you will be working on writing, revising, and improving your analysis of data. You will also work on finalizing your presentation for next week.  Note that your presentation and analysis should be submitted to your Peer Review Team no later than Monday of next week. This will give your Peer Review Team the opportunity to fully respond and give appropriate feedback before the final submissions. | | 6.1, 6.2 | N/A |
| **Capstone: Presentation**  This week you will be finalizing your presentation of the capstone assignment. You will submit your presentation to your Peer Review Team by Thursday. Then you will review everyone’s presentations by Sunday of this week.  Your presentation should include the following elements:   * Research Question * Metrics for Program Evaluation * Data Set Selection and Justification * Presentation of Data   *Note*: You will add in your recommendations and justification to the final presentation due in Week Seven. | | 6.1, 6.2 | N/A |
| ***Assignments:*** *Students must complete the weekly assignment(s).* | | ***Alignment*** | ***Points/AIE/***  ***Generic*** |
| **Peer Review Team: Mapping the Research Question to the Data and Building a Hypothesis**    **Review** each of the Week Five Capstone Assignment assignments:   * Capstone Assignment: Mapping the Research Question to the Data * Capstone Assignment: Building a Working Theory   For each project, **write** a brief 100–200-word summary of the assignment, including:   * Content or ideas you are unsure about * Ways you hope to improve the assignment before final submission     **Submit** your summaries and assignments to the team discussion board titled “Mapping the Research Question to the Data and Building a Hypothesis” by Thursday 11:59 p.m. EST.    **Review** your peer support group members’ submissions.  **Post** additional questions, constructive criticism, clarification, or your own relevant thoughts to all of your peer support group members by Sunday 11:59 p.m. EST. | | 5.1, 5.2, 5.3 | Discussion: one post and replies to all other posts, reactions to directed posts =  **3 hour** |
| **Peer Review Team: Analysis and Presentation**  **Write** a brief contextual introduction to your analysis and presentation that answers the following questions:   * What is your research question? * Why should your audience be interested in the answer to your question? In other words, why is it important?   **Post** your introduction, analysis, and presentation for review by your Peer Review Team by Thursday 11:59 p.m. EST.    **Post** additional questions, constructive criticism, clarification, or your own relevant thoughts to all of your peer support group members by Sunday 11:59 p.m. EST. | | 6.1, 6.2 | Discussion: one post and replies to all other posts, reactions to directed posts =  **3 hour** |
| **Capstone Assignment: Data-Driven Recommendations**  After completing your working theory of the data, you will need to create some data-driven recommendations about the program as a whole in an official capacity. This assignment is your professional opinion about the program, justified by the data analysis you’ve performed.  **Write** a program recommendation for or against continuing with or starting the proposed program.  **Write** a 150–250-word justification of this recommendation, using your data analysis and research.  **Submit** this assignment to your instructor via Blackboard. | | 6.2 | Guided project =  **1 hour** |
| **Total** |  |  | **7 hours** |

# Faculty Notes

**Capstone Project: Speed of Grading**

Due to the quick turnaround of assignments in weeks 5, 6, and 7, please ensure that student assignments are graded as quickly as possible. If you can, try to grade each of the Data-Driven Recommendations assignments no later than Monday 12:00 EST.

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| Week Seven: Communicating Recommendations Based on Research Data | |  |  |
| ***Learning Objectives*** | | ***Alignment*** | |
| * 1. Communicate recommendations based upon research data for an audience of non-expert professionals. | | CLO1, CLO5 | |
| ***Required Learning Resources and Activities****: Students must complete any resources and activities listed in this section as selected by the instructor.* | | ***Alignment*** | ***Pages/AIE/***  ***Generic*** |
| **Week 7 Introduction**  You made it! In this week of the course, you will be finalizing your presentation and analysis. Note that you will be expected to submit your final drafts to your Peer Review Teams on Monday of this week, and to provide feedback to other members of your team no later than Thursday. This will allow everyone a few days to compile and submit their final presentations and analysis at the highest level of quality. | | 7.1 | N/A |
| **Articles: Building Data-Driven Recommendations**  **Read** the following articles about building recommendations based on data:   * “Three Keys to Building a Data-Driven Strategy”: <http://www.mckinsey.com/business-functions/business-technology/our-insights/three-keys-to-building-a-data-driven-strategy> * “Data-Driven Improvement and Accountability”: <http://nepc.colorado.edu/publication/data-driven-improvement-accountability/>   **Consider** the following questions while you read the articles:   * What are the major factors to consider when choosing data upon which to base a strategy? * What factors play into choosing which metrics to measure? * What follow-through is required to achieve growth and change in your industry? | | 7.1 | N/A |
| ***Supplemental Learning Resources and Activities****: These resources and activities provide further exploration of content, supplemental information, and skill building. Students may complete items in this section on their own or as selected by the instructor.* | | ***Alignment*** | ***Pages/AIE/***  ***Generic*** |
| **Adobe Connect Live Discussion**  **Participate** in the scheduled live session with the course instructor. This session will provide a summary of the course.  **Prepare** to ask questions concerning the content of the course and provide constructive feedback.  *Note*:A recorded lecture will be made available to those who are unable to attend the live session. | | N/A | Live Discussion: lecture and discussion = **1 hour** |
| **Total** |  |  | **1 hour** |
| ***Assignments****: Students must complete the weekly assignment(s).* | | ***Alignment*** | ***Points/AIE/***  ***Generic*** |
| **Peer Review Team: Final Capstone Project**  **Submit** your final culminating project, including your presentation, to the team discussion board titled “Final Capstone Assignment” by Monday 11:59 p.m. EST.    **Review** your peer support group members’ submissions.  **Post** additional questions, constructive criticism, clarification, or your own relevant thoughts to all of your peer support group members by Thursday 11:59 p.m. EST. | | 7.1  Peer Review Team Rubric | Discussion: one post and replies to all other posts, reactions to directed posts =  **3 hour** |
| **Capstone Project: Final Presentation and Analysis**  **Synthesize** your research, data, and analysis.  **Compose** your culminating project analysis, including the following elements:   * Research Question * Metrics for Program Evaluation * Data Set Selection and Justification * Presentation of Data * Recommendations and Justification   **Create** your final presentation, including the follow elements:   * Research Question * Metrics for Program Evaluation * Data Set Selection and Justification * Presentation of Data * Recommendations and Justification   **Submit** your assignment to your instructor via Blackboard no later than Sunday 11:59 p.m. EST. | | 7.1 | Guided project =  **2 hour** |
| **Total** |  |  | **4 hours** |

# Breakdown of Academic Instructional Equivalencies

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|  |  |  |
| **Week 1** |  |  |
| Required |  | 5.5 hours |
| Supplemental |  | 1 hour |
|  |  |  |
| **Week 2** |  |  |
| Required |  | 5.5 hours |
| Supplemental |  |  |
|  |  |  |
| **Week 3** |  |  |
| Required |  | 4.5 hours |
| Supplemental |  |  |
|  |  |  |
| **Week 4** |  |  |
| Required |  | 5 hours |
| Supplemental |  |  |
|  |  |  |
| **Week5** |  |  |
| Required |  | 6 hours |
| Supplemental |  |  |
|  |  |  |
| **Week 6** |  |  |
| Required |  | 7 hours |
| Supplemental |  |  |
|  |  |  |
| **Week 7** |  |  |
| Required |  | 5 hours |
| Supplemental |  | 1 hour |
|  |  |  |
|  |  |  |
| **Total Required Hours** |  | 38.5 |
| **Total Supplemental Hours** |  | 2 |
| **Total Hours** |  | 40.5 hours |