**DATA SCIENCE (DS) BACHELOR OF APPLIED SCIENCE**

**FEEDER ASSOCIATES: SOFTWARE DEVELOPMENT/PROGRAMMING**

**QUARTERLY/YEARLY SCHEDULE**

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| **First Year** |  |  |  |
| **Fall** | **Winter** | **Spring** | **Summer** |
| **ENGL& 101: Introduction to English (5 Credits)**  WRITTEN COMM | **MATH 1XX: Introduction to Statistics (5 Credits)**  QUANTITATIVE | **DS 101: Introduction to Data Science (5 Credits)** |  |
| **IT 1XX: Data Mining** | **BUS& 101: Introduction to Business (5 Credits)**  SOCIAL SCIENCE | **DBA 1XX : Database Theory** **(5 Credits)** |  |
| **PROG I: Programming with Python (5 Credits) \*** *See Notes* | **PROG 2: Programming with Python (5 Credits)** *\* See Notes* | **PROG 1XX: Systems Analysis and Design (5 Credits)** |  |
| **Second Year** |  |  |  |
| **Fall** | **Winter** | **Spring** | **Summer** |
| **MATH 2XX: Introduction to Linear Algebra (5 Credits)** | **PROG 2XX: SQL & Relational Database Programming (5 Credits)** | **PSYC& 100: General Psychology (5 Credits)**  **OR PSYC 203: Cognitive Psychology (5 Credits)**  SOCIAL SCIENCE |  |
| **BIO 100: Introduction to Biology (5 Credits)**  NATURAL SCIENCE | **COM 2XX: Organizational Communications (5 Credits)**  **OR PHIL 2XX: Contemporary Moral Problems (5 Credits)**  HUMANITIES/CULTURAL DIVERSITY REQ | **DS 2XX: Visual Analytics (5 Credits)** |  |
| **PROG 2XX: Data Structures and Algorithms (5 Credits)** *(prereq: PROG 2)* | **ENGL& 235: Technical Writing (5 Credits)**  *(prereq: ENGL& 101)*  WRITTEN COMM | **DS 2XX: Programming for Machine Learning (with Python) (5 Credits)** *(prereq: Data Structures & Algorithms)* This course has already gone through a focus group for the Robotics/AI BAS degree |  |
| **Third Year** |  |  |  |
| **Fall** | **Winter** | **Spring** | **Summer** |
| **MATH 3XX: Applied Statistics I (5 Credits)** | **MATH 3XX: Applied Statistical Methods II (5 Credits)** | **200- or 300-Level (5 credits):** HUMANITIES |  |
| **DS 3XX: Introduction to Deep Learning I (5 Credits)** | **200- or 300-Level (5 credits):**  HUMANITIES | **300- or 400-Level (5 credits):**  SOCIAL SCIENCE |  |
| **DS 3XX: Predictive Analytics (5 Credits)** | **DS 3XX: Dimensional Modeling** | **DS 3XX: Business Intelligence Applications (5 Credits)** |  |
| **Fourth Year** |  |  |  |
| **Fall** | **Winter** | **Spring** | **Summer** |
| **DS 4XX: Deep Learning II (5 Credits)** | **DS 4XX: Machine Learning with Big Data Sets II (5 Credits)** | **DS 4XX: Security and Data Science** |  |
| **DS 4XX: Machine Learning with Big Data Sets I (5 Credits)** | **DS 4XX: Capstone I (Prototyping Project) 5 Credits** | **DS 4XX: Capstone II (Internship) (5 Credits)** |  |
| **DS 4XX: Statistical Consulting (5 credits)** | **100- to 400-Level (5 Credits)**  NATURAL SCIENCE | **DS 4XX: Time Series Analysis**  **(5 Credits)** |  |

**Notes:**

1. There are course descriptions hyperlinked so IT faculty can look at examples of courses at either Bellevue College, or another university/college. Thus, minimizing time researching course outlines based upon course titles.

2. Programming I & II: Based upon an EMSI Job Posting Report on Data Science the languages most frequently written within the job posting are Python and Java (23% each). C++ and C# (16%), C (14%). Thus, Python and Java are the two recommended programming languages. However, as long as a student has two quarters in the same programming language, the other three languages are acceptable. **Note:** Python is used in many of the subsequent foundational and advanced courses. That is why it is strongly recommended.

3. General Education recommendations are made based upon the Center’s numerous skills panels and focus groups with software developer/programmers, data scientists, networking, security, and general IT professionals. Additionally, the employability (or soft) skills, are also recommended based upon EMSI reports and the aforementioned skills panels/focus groups.