### PSUT-CSU 2+2 dual-degree B.Sc. in Computer Science (PSUT) / Data Science (CSU)

### Updated (July 11, 2023)

### Draft of the final Study plan accepted by CSU:

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| **Semester 1 at PSUT** |   | **Semester 2 at PSUT** |  |
| **Course #** | **Course Title** | **CR** |   | **Course #** | **Course Title** | **CR** |  |
| 11101  | Intro to Computer Science (sub for DSCI100)  | 3 |   | 11103  | Structured Programming + Lab (\*Need all 4 classes = CS 163)  | 3 |  |
| 31361  | Intro to Philosophy (AUCC - 3B; Arts and Humanities)  | 3 |   | 11151  | Lab for Structured Programming (\*Need all 4 classes = CS 163)  | 1 |  |
| 20132  | Calculus 1 (MATH160)  | 3 |   | 31151  | National Education (AUCC - 3B; Arts and Humanities)  | 3 |  |
| 31221  | English Language (LGEN1++ - elective)  | 3 |   | 20133  | Calculus 2 (MATH161)  | 3 |  |
| 20141  | Physics 1 (AUCC - 3A; Biological and Physical Science)  | 3 |   | 22241 | Digital Logic Design | 3 |  |
| 20150  | Physics Lab (AUCC -3L; Biological and Physical Science Lab)  | 1 |   | 20142  | Physics 2 (AUCC - 3A; Biological and Physical Science)  | 3 |  |
|   | Total | 16 |   |   | Total | 16 |  |

A student can register for a PSUT university elective such as (31152 Arabic Islamic Civilization (which also counts as an AUCC - 3D; Historical Perspectives at CSU)

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| **Semester 3 at PSUT** |   | **Semester 4 at PSUT** |  |
| **Course #** | **Course Title** | **CR** |  | **Course #** | **Course Title** | **CR** |  |
| 11206  | Object Oriented Programming (\*Needs all 4 classes = CS 163)  | 3 |   | 11212  | Data Structures and Intro to Algorithms (CS 165) | 3 |  |
| 11253  | Object Oriented Programming Lab (\*Needs all 4 classes = CS 163)  | 1 |   | 22342  | Computer Organization and Assembly Language (CS 270 equivalent is from CSU to PSUT transfer guidance sheet; would transfer to CSU as CS 2++)  | 3 |  |
| 20200  | Technical Writing & Communication Skills (LGEN1++ - elective; does NOT meet CO 150, that equivalent was from CSU to PSUT transfer guidance sheet)  | 3 |   | 31261  | Intro to Politics and Economics Science (AUCC - 3C Social and Behavioral Science)  | 3 |  |
| 20234  | Linear Algebra (MATH369)  | 3 |   | 11316  | Theory of Computation (CS 1++ - CS elective)  | 3 |  |
| 31251  | Military Science and Citizenship (MLSC1++, elective)  | 3 |   |  11323 | Database Systems | 3 | \*1 |
| 20134  | Discrete Mathematics (CS 220)  | 3 |   |  11345 | Database Systems Lab | 1 | \*1 |
|   | Total | 16 |   |   | Total | 16 |  |

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| **Semester 5 at CSU** |   | **Semester 6 at CSU** |  |
| **Course #** | **Course Title** | **CR** |  | **Course #** | **Course Title** | **CR** |  |
| STAT341  | Statistical Analysis 1  | 3 |   |   | Advanced Writing (CO 300, 301B, 302 or JTC 300)  | 3 |  |
| CS 320  | Algorithms - Theory and Practice  | 3 |   | STAT342  | Statistical Data Analysis 2  | 3 |  |
| MATH261  | Calculus for Physical Scientists 3  | 4 |   | DSCI335  | Inferential Reasoning in Data Analysis  | 3 |  |
| CO 150  | Intermediate Writing (MUST BE TAKEN AT CSU)  | 3 |   | DSCI336  | Data Graphics and Visualization  | 1 |  |
| MATH 360 | Mathematics of Information Security | 3 |   | DSCI235  | Data Wrangling  | 2 |  |
|   |   |   |   | CS 253  | Software Development with C++  | 4 |  |
|   | Total | 16 |   |   | Total | 16 |  |

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| **Semester 7 at CSU** |   | **Semester 8 at CSU** |  |
| **Course#** | **Course Title** | **CR** |  | **Course #** | **Course Title** | **CR** |  |
| DSCI445  | Statistical Machine Learning | 3 |   | DSCI478  | Capstone Group Project in Data Science  | 4 |  |
| DSCI320  | Optimization Methods in Data Science  | 3 |   | ECE 452 | Computer Organization and Architecture | 3 | \*2 |
| CS 457 | Computer Networks and the Internet (\*pending CSU approval to count PSUT’s 22342 for CSU’s CS270) | 4 |   | CS 370 | Operating Systems | 4 |  |
| ECON212  | Racial Inequality and Discrimination/Diversity, Equity, Inclusion (AUCC-1C)  | 3 |   | CS 440  | Intro to Artificial Intelligence/from Computer Science Elective (from list)  | 3 |  |
| STAT 400  | Statistical Computing/Data Science Elective (from list)  | 3 |   | CS 314 | Software Engineering | 3 |  |
|   | Total | 16 |   |   | Total | 17 |  |

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| \*1 | We need to allow CS students to take the Database Systems (11323) and its lab (11345) and the Data Structures (DS) course concurrently. We have the permission to exempt our CS students from having to take the DS course as a prerequisite. |
| \*2 | Count the DSCI320 Optimization Methods (CSU) for the 20333 Numerical Analysis course (PSUT). The DSCI320 course at CSU covers numerical algorithms relevant to Data Science and Machine Learning and CSU says that a general Numerical Analysis course is not needed.  |