|  |  |
| --- | --- |
| For Academic Affairs and Research Use Only | |
| Proposal Number |  |
| CIP Code: |  |
| Degree Code: |  |

**Program Modification Form**

**[X] Undergraduate Curriculum Council**

**[ ] Graduate Council**

|  |
| --- |
| **Modification Type: [ ]Admissions, [X]Curricular Sequence, or [ ]Other** |

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Enter date |   **Department Curriculum Committee Chair** | |  |  | | --- | --- | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Enter date |   **COPE Chair (if applicable)** |
| |  |  | | --- | --- | | Donald Kennedy | 3/2/2021 |   **Department Chair** | |  |  | | --- | --- | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Enter date |   **Head of Unit (if applicable)** |
| |  |  | | --- | --- | | J Kim Pittcock | 3/2/2021 |   **College Curriculum Committee Chair** | |  |  | | --- | --- | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Enter date |   **Undergraduate Curriculum Council Chair** |
| |  |  | | --- | --- | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Enter date |   **Director of Assessment** *(only for changes impacting assessment)* | |  |  | | --- | --- | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Enter date |   **Graduate Curriculum Committee Chair** |
| |  |  | | --- | --- | | Mickey Latour | 3/2/2021 |   **College Dean** | |  |  | | --- | --- | | Alan Utter | 3/15/2021 |   **Vice Chancellor for Academic Affairs** |
| |  |  | | --- | --- | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Enter date |   **General Education Committee Chair (if applicable)** |  |

1. **Contact Person** (Name, Email Address, Phone Number)

John W. Nowlin, jnowlin@astate.edu, (870) 972-3468

1. **Proposed Change** (for undergraduate curricular changes please provide an 8-semester plan (appendix A), if applicable)

Addition of a domain study option in Geospatial Technology to the B.S. in Data Science and Data Analytics program.

1. **Effective Date**

Fall 2021

1. **Justification –** *Please provide details as to why this change is necessary.*

To provide a domain study option for students interested in working with spatial data through the use of geospatial technologies in the realms of: agriculture, natural resources, planning, the environment, government and/or the private sector, as a part of the new B.S. in Data Science and Data Analytics, in the Data Analytics emphasis.

**Bulletin Changes**

|  |
| --- |
| **Instructions** |
| **Please visit** [**http://www.astate.edu/a/registrar/students/bulletins/index.dot**](http://www.astate.edu/a/registrar/students/bulletins/index.dot) **and select the most recent version of the bulletin. Copy and paste all bulletin pages this proposal affects below. Please include a before (with changed areas highlighted) and after of all affected sections.**  **\*Please note: Courses are often listed in multiple sections of the bulletin. To ensure that all affected sections have been located, please search the bulletin (ctrl+F) for the appropriate courses before submission of this form.** |

**After Page 185, following the “Data Science and Data Analytics Program” section and before the heading on “Engineering Programs”**

**DOMAIN STUDIES**

**DOMAIN STUDY: Geospatial Technology (for Data Analytics Track)**

**EMPHASIS: Data Analytics**

**SPONSORING COLLEGE: College of Agriculture**

***\*Note: Requires General Education, Social Science: GEOG 2613 Introduction to Geography***

|  |  |  |
| --- | --- | --- |
| **Required Courses:** | | **Sem. Hours** |
| AGST 3543 | Fundamentals of GIS/GPS | 3 |
| AGST 4511 | Unmanned Aircraft Systems | 1 |
| AGST 4543 | Understanding Geographic Information Systems | 3 |
| AGST 4773 | Remote Sensing | 3 |
| GEOG 3723 OR  GEOG 4633 | Introduction to Physical Geography, Weather and Climate OR  Climatology | 3 |
| **Select six from the following:** | |  |
| AGEC 4253 | Agricultural and Environmental Data Science | 18 |
| AGRI 4223 | Agriculture and the Environment |
| AGST 4503 | Agricultural Decision Tools and Analysis |
| AGST 489V | Special Problems in Agricultural Systems Technology |
| GEOG 3723 OR  GEOG 4633 | Introduction to Physical Geography, Weather and Climate OR  Climatology |
| GEOG 4113 | Water Resources Planning |
| GEOG 4613 | Conservation of Natural Resources |
| GEOG 4643 | Geography of Arkansas |
| GEOG 4813 | Special Topics in Geography |
| **Domain Studies Total** | | **31** |

# Eight-Semester Degree Plan Bachelor of Science in Data Science and Data Analytics

**2021-2022**

# Data Analytics Track – Geospatial Technology Domain

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year 1** | | | | | | | | |
| **Fall Semester** | | | |  | **Spring Semester** | | | |
| **Course No.** | **Course Name** | **Hrs** | **Gen Ed** |  | **Course No.** | **Course Name** | **Hrs** | **Gen Ed** |
| ENG 1003 | Composition I | 3 | x |  | ENG 1013 | Comp II | 3 | x |
| MATH 1023 | College Algebra | 3 | x |  | COMS 1203 | Oral Communication | 3 | x |
| CS 1093 or any other FYE course | Making Connections Computer Science, or any other Making Connections (FYE) course | 2-3 |  |  | MATH 2143 MATH 2194 | Choose one: Business Calculus Survey of Calculus | 3-4 |  |
| CS 1013 | Intro to Computers | 3 |  |  | CS 1114 | Concepts of Programming | 4 |  |
| HIST 2763  HIST 2773  POSC 2103 | Choose one:  US History to 1876 US History since 1876  Intro to US Government | 3 | x |  | Gen Ed Social Science\* GEO 2613  HIST 1013/1023 SOC 2213  PSY 2013  POSC 1003  CMAC 1003 | Choose one:  Intro to Geography  World Civ. to or since 1660 Intro to Sociology  Intro to Psychology Intro to Politics  Intro to Mass Communication | 3 | x |
| **Total Hours:** | | 14-15 | |  | **Total Hours**: | | 16-17 | |
|  | |  | |  |  | |  | |
| **Year 2** | | | | | | | | |
| **Fall Semester** | | | |  | **Spring Semester** | | | |
| **Course No.** | **Course Name** | **Hrs** | **Gen Ed** |  | **Course No.** | **Course Name** | **Hrs** | **Gen Ed** |
| Life Science Gen. Ed.  BIOL 1003/ 1001  BIOL 1033/ 1001  BIOL 1063/ 1001  BIO 1503/ 1501  BIO 2013/ 2011  BIO 2103/ 2101  BIO 2203/ 2201 | Choose one:  Biological Science/ Lab Biology of Sex/ Lab  People & Environment/ Lab Biology of Plants/ Lab Biology of the Cell/ Lab  Microbio… Nursing & Allied Health/ Lab Human Anatomy & Physiology I/ Lab | 4 | x |  | Gen Ed Social Science\* GEO 2613  HIST 1013  HIST 1023  SOC 2213  PSY 2013  POSC 1003  CMAC 1003 | Choose one:  Intro to Geography World Civ. to 1660 World Civ. Since 1660 Intro to Sociology Intro to Psychology Intro to Politics  Intro to Mass Communication | 3 | x |
| AGST 3503 | Geospatial Data Applications (DSDA 101) | 3 |  |  | Physical Science Gen. Ed.  CHEM 1013 / 1011  CHEM 1043 / 1041  GEOL 1003 / 1001  PHSC 1014  PHSC 1203 / 1201  PHYS 1103 / 1101  PHYS 2034  PHYS 2054 | Choose one:  General Chemistry I / Lab  Fund. Concepts of Chemistry / Lab Environmental Geology / Lab Energy and the Environment Physical Science / Lab  Intro to Space Science / Lab University Physics I  General Physics I | 4 | x |
| Fine Arts: ART 2503  MUS 2503  TEHA 2503 | Choose one: Fine Arts – Visual Fine Arts – Music  Fine Arts - Theater | 3 | x |  | DATA 2004 | Programming for Data Analysis | 4 |  |
| STAT 3233 | Applied Stat 1 | 3 |  |  | AGST 3543 | Fundamentals of GIS/GPS | 3 |  |
| PHIL 1103 | Intro to Philosophy (Humanities Elective) | 3 | x |  |  |  |  |  |
| **Total Hours:** | | 16 | |  | **Total Hours**: | | 14 | |

|  |  |  |  |  |  |  |  |  |  |  |  |
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| **Year 3** | | | | | | | | | | | |
| **Fall Semester** | | | | | | | **Spring Semester** | | | | |
| **Course No.** | **Course Name** | | | | **Hrs** | **Gen Ed** | **Course No.** | **Course Name** | | **Hrs** | **Gen Ed** |
| DATA 3003 | Applied Database and Data Mining | | | | 3 |  | STAT 3243 | Regression Analysis and ANOVA | | 3 |  |
| GEOG 2613 | Intro to Geography | | | | 3 |  | AGST 4773 | Remote Sensing | | 3 |  |
| STAT 3133 | Applied Categorical Data Analysis | | | | 3 |  | GEOG 4113 | Water Resources Planning | | 3 |  |
| AGST 4511 | Unmanned Aircraft Systems | | | | 1 |  | AGST 3543 | Fundamentals of GIS/GPS | | 3 |  |
| AGST 4503 | Agricultural Decision Tools and Analysis | | | | 3 |  | GEOG 4613 | Conservation of Natural Resources | | 3 |  |
| DATA 3011 | Seminar | | | | 1 |  |  |  | |  |  |
| **Total Hours:** | | | | | 14 | | **Total Hours**: | | | 15 | |
|  | | | | | | | | | | | |
| **Year 4** | | | | | | | | | | | |
| **Fall Semester** | | | | | | | **Spring Semester** | | | | |
| **Course No.** | **Course Name** | | | | **Hrs** | **Gen Ed** | **Course No.** | **Course Name** | | **Hrs** | **Gen Ed** |
| DATA 4003 | Fundamental Concepts in Design of Experiments | | | | 3 |  | DATA 4013 | Data Science and Data Analytics Capstone | | 3 |  |
| POSC 3003   STAT 4483   AGEC 4253 | Choose one:  Intro to Political Analysis | | |  | 3 |  | GEOG 4813 | Special Problems in Geography | | 3 |  |
| Statistical Methods using R | | | |
| Agricultural & Environmental Data Science | | | |  |  |  |  | |  |  |
|  |  | | |
| DATA 3023 | Data Visualization and Data Communication | | | | 3 |  | PHIL 3723 | Computers, Ethics, and Society | | 3 |  |
| AGST 4543 | Understanding GIS | |  | | 3 |  | AGST 489V | Special Problems in Agricultural Systems Technology |  | 1-3 |  |
| GEOG 3723   OR  GEOG 4633 | Introduction to Physical Geography, Weather, & Climate  OR  Climatology | | | | 3 |  | DATA 303V | Internship | | 1 |  |
|  |  | | | |  |  | GEOG 3723   OR  GEOG 4633 | Introduction to Physical Geography, Weather, & Climate  OR  Climatology | | 3 |  |
|  |  | | | |  |  |  |  | |  |  |
| **Total Hours:** | | | | | 15 | | **Total Hours**: | | | 14-16 | |
| **Total Upper-Level Hours:** | | | | | **45-47** | | **Total Degree Hours**: | | | **120** | |