**MIS634 – Fall 2022**

**School**: **School of Business**

**Course Title**: Business Intelligence & Data Integration **- LAB**

**Program(s)**:  BIA, MIS

**Proposed Course # or Level**: MIS 634

**Catalog Description**

This 1-credit lab course provides an experiential learning component for MIS 633 ML Engineering 2 for which it is a co-requisite. MIS 634 provides hands-on experience in designing, implementing, and querying data warehouses and large-scale database systems. The relevant software is introduced using demonstrations, in-class exercises and homework exercises that are closely tied to and executed in synch with the conceptual and theoretical material covered in MIS 633. Specifically, students will gain hands-on experience in using: (i) Alteryx - a widely used commercial tool for the Extract-Transform- Load (ETL) function, (ii) ERWIN - a widely used commercial tool for representing conceptual (e.g., E-R diagrams) and logical data models (e.g., relational DBMS) and (iii) a NoSQL database (e.g., MongoDB), (iii) Interactive Data Visualization (e.g., Tableau). Students in MIS 634 must also be enrolled in the associated 2-credit lecture course MIS 633 Business Intelligence & Data Integration course.

**Course Objectives**

Through immersion in practical applications of the concepts, data models and theory in the associated co-requisite course MIS 633, students are prepared for a world in which data and evidence-based decision making are increasingly important. The skills gained in this course are essential for employees in the information technology and analytics departments in all major industries.

**List of Course Outcomes**

Through their exposure to case studies, in-class demonstrations and exercises, assigned homeworks and a team project, students will be able to:

1. Understand the data warehouse life cycle: business requirements, data track, BI track, technical architecture track
2. Project planning and architecture
3. Develop conceptual data models (Star Schemas)
4. Complete physical design (aggregations and cubes)
5. Use OLAP functions
6. Execute ETL functions with a commercial tool
7. Build dashboards and graphics for a business area
8. Work in a team to execute a database development project.

**Prerequisites**:       **Cross-listing**:        — show cross-listed course number(s)

**Corequisites**: MIS 633   
Students in MIS 634 must also be enrolled in the associated 2-credit lecture course MIS 633 Business Intelligence & Data Integration course

**Grading Percentages**: HW ☒ 90% Class work ☐   
 Mid-term ☐ Final ☐ Projects ☐

Other ☒ 10% class participation

**Grading Policy：**

* **Homework Assignments**

Due by midnight on the day before the next week’s class  
Homework Late Policy：  
Up to 24 hours late: 10% off  
Up to 48 hours late: 20% off  
Up to 72 hours late: 30% off  
> 72 hours late: Not accepted

**Credits**: ☒ 1 credits  ☐ Other

**For Graduate Credit toward Degree or Certificate** ☒ Yes ☐ No ☐ Not for Dept. Majors ☐ Other

**PREREQUISITES**

* Students must satisfy the requirement for enrollment in either the BI&A or MIS master’s degree programs. Prior enrollment in MIS 631 (or equivalent database course) is highly recommended.

**Textbook(s) or References**

* *Software and tool documentation for ERwin, Alteryx and MongoDB*

**Support for Team Project in MIS 633**

Students will be assisted in their work in the MIS 633 class project where teams of 3-4 students will develop a data warehouse and BI application for a business area of their choice. There will be several deliverables including a proposal, progress update(s), final report and a final in-class presentation. Students use this project to develop skills required for the entire data life cycle.

**Mode of Delivery** ☒Class ☒Online ☐Modules ☐Other

**Program/Department Ownershi****p:** MIS

**When first offered**:  Fall 2022

**TENTATIVE COURSE SCHEDULE：**

|  |  |  |
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| **Lecture #** | **Tentative Date** | **Topic(s)** |
| 1 | week 1:2/Sep | Install ERwin, Alteryx, MongDB, Tableau |
| 2 | week 2:9/Sep | ERwin: ER Model I |
| 3 | week 3:16/Sep | ERwin: ER Model II |
| 4 | week 4:23/Sep | Alteryx I |
| 5 | week 5:30/Sep | Alteryx II |
| 6 | week 6:7/Oct | MongoDB I |
| 7 | week 7:14/Oct | MongoDB II |
| 8 | week 8:21/Oct | MongoDB III （Recoding） |
| 9 | week 9: 28/Oct | ERwin: Dimensional Model I |
| 10 | week 10:4/Nov | ERwin: Dimensional Model II |
| 11 | week 11:11/Nov | Tabluea I |
| 12 | week 12: 25/Nov | No Class |
| 13 | week 13:2/Dec | Tabluea II |
| 14 | week 14:9/Dec | Q&A |
| 15 | week 15:16/Dec | Final Presentation |