

# Minnesota State University Moorhead

## CSIS 446: Intelligent and Predictive Systems

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: 0

OJT Hours/Week: \*.\*

Prerequisites:

This course requires all three of these prerequisite categories

1. CSIS 155 - Introduction to Computers & Programming I
- And
2. MATH 210 - Concepts from Discrete Mathematics
- And
3. CSIS 304 - Databases

Corequisites: None

MnTC Goals: None

Introduction to the concepts and tools used in the development of decision support systems, executive information systems and expert systems by utilizing different methodologies and models, Machine Learning, and Data Warehousing, including strategies for developing such systems. Senior standing required.

**B. COURSE EFFECTIVE DATES:** 09/02/2016 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Decision support methodologies
2. Optimization (linear programming)
3. Knowledge based systems (data visualization tools)
4. Machine learning
5. Data based systems (data warehouse, data mining, geographic information system)

### D. LEARNING OUTCOMES (General)

1. Construct and analyze decision support methodologies and models.
2. Explain basic terminology and components of Machine Learning.
3. Explain the differences between DSSs, management information systems, and transaction processing systems.
4. Perform spatial analysis using a geographic information system.
5. Utilize various data visualization tools for decision support.
6. Construct and analyze optimization models for decision support.
7. Understand knowledge management techniques that can be used in different predictive systems.
8. Develop a prototype system utilizing the learned decision support methodologies.
9. Compare and contrast the characteristics of data warehouses and operational databases.
10. Perform data mining on a data warehouse.

### E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

**F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted