MASTER SYLLABUS

COURSE NUMBER – COURSE NAME
BSAD 304 – Business Analytics

CIP Code: 52.1301
For assistance determining CIP Code, please refer to this webpage
https://nces.ed.gov/ipeds/cipcode/browse.aspx?y=55
or reach out to Sarah Todd at todds@canton.edu

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School of Business and Liberal Arts

Department: Business

Semester/Year: Fall/2022

A. TITLE: Business Analytics

B. COURSE NUMBER: BSAD 304

C. CREDIT HOURS: **(Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)**

   # Credit Hours: 3
   # Lecture Hours: 3 per week
   # Lab Hours: per week
   ** Other: per week**

   Course Length: 15 Weeks

D. WRITING INTENSIVE COURSE: Yes ☐ No ☒

E. GER CATEGORY: **None: ☒   Yes:** GER
   If course satisfies more than one: GER

F. SEMESTER(S) OFFERED: **Fall ☐   Spring ☐   Fall & Spring ☒**

G. COURSE DESCRIPTION:

This course will introduce students to business analytics with a focus on prescriptive analytics and spreadsheet (Excel) modeling. Topics will include linear, integer, and nonlinear programming models (product mix, make or buy, plant location, etc.), distribution and network models (transportation, transshipment, shortest-route, etc.), and forecasting.

H. PRE-REQUISITES: **None ☐   Yes ☒ If yes, list below:**

(CITA 108 or 110) and (MATH 111 or MATH 121) and minimum 30 credit hours.

   CO-REQUISITES: **None ☒   Yes ☐ If yes, list below:**

I. STUDENT LEARNING OUTCOMES: (*see key below*)

        By the end of this course, the student will be able to:

Course Student Learning Outcome [SLO]	*Program Student Learning Outcome [PSLO]*	*GER [If Applicable]*	*ISLO & SUBSETS*	
Describe the steps involved in developing decision models			5-Ind, Prof, Disc, Know Skills	Subsets
			ISLO	Subsets
			ISLO	Subsets
				Subsets

Be able to set up and solve linear programming problems using Excel Solver.				2-Crit Think ISLO ISLO	PS Subsets Subsets Subsets
Be able to formulate, set up, and solve transportation models using Excel Solver.				2-Crit Think ISLO ISLO	PS Subsets Subsets Subsets
Be able to formulate, set up, and solve shortest-path network models using Excel Solver.				2-Crit Think ISLO ISLO	PS Subsets Subsets Subsets
Be able to formulate, set up, and solve integer programming models using Excel Solver.				2-Crit Think ISLO ISLO	PS Subsets Subsets Subsets
Understand when to use various types of forecasting models.				5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
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KEY	Institutional Student Learning Outcomes [ISLO 1 – 5]
ISLO #	ISLO & Subsets
1	**Communication Skills** Oral [O], Written [W]
2	**Critical Thinking** *Critical Analysis [CA] , Inquiry & Analysis [IA] , Problem Solving [PS]*
3	**Foundational Skills** *Information Management [IM], Quantitative Lit,/Reasoning [QTR]*
4	**Social Responsibility** *Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]*
5	**Industry, Professional, Discipline Specific Knowledge and Skills**

*Include program objectives if applicable. Please consult with Program Coordinator

J. APPLIED LEARNING COMPONENT: Yes ☐ No ☒

If YES, select one or more of the following categories:

☐ Classroom/Lab
☐ Internship
☐ Clinical Placement
☐ Practicum
☐ Service Learning
☐ Community Service

☐ Civic Engagement
☐ Creative Works/Senior Project
☐ Research
☐ Entrepreneurship
(program, class, project)

K.   TEXTS:

Balakrishnan, N., Render, B., & Stair, Jr., R. M. (2013). Managerial Decision Modeling with
       Spreadsheets, 3rd edition. NJ: Pearson or similar textbook/OER resources.

L.   REFERENCES:

M.   EQUIPMENT: **None** ☐ **Needed:** Laptops (provided to students in regular classroom) or classroom equipped with computers. Computers must have Microsoft Excel installed and the Solver Add-in enabled.

N.   GRADING METHOD: A-F

O.   SUGGESTED MEASUREMENT CRITERIA/METHODS:

Exams/quizzes, assignments, small project/case study.

P.   DETAILED COURSE OUTLINE:

I. Introduction to managerial decision modeling
  A. What is decision modeling? Types of decision models.
  B. Steps involved in decision modeling and possible problems.
  C. Examples
II. Linear programming (LP) models
  A. LP model properties and assumptions
  B. Formulating an LP problem
  B. Using Excel Solver to solve LP problems
  C. Sensitivity analysis
III. Linear programming modeling applications
  A. Manufacturing applications (product mix, etc.)
  B. Blending application
  C. Other applications
IV. Transportation, Assignment, and Network models
  A. Transportation models
  B. Transshipment models
  C. Assignment models
  D. Maximal-Flow models
  E. Shortest-Path models
V. Integer, Goal, and Nonlinear programming models
  A. Models with general integer variables
  B. Models with binary variables
  C. Mixed integer models
  D. Goal programming
  E. Nonlinear programming
VI. Forecasting
  A. Qualitative forecasting models

B. Basic time-series forecasting models
C. Trend and seasonality
D. Causal forecasting
VII. Decision Analysis and other topics (as time permits)

Q.   LABORATORY OUTLINE: **None** ☒ **Yes** ☐