UCONN
UNIVERSITY OF CONNECTICUT

OPIM 5185 Section 730
Introduction to Data Analytics and
Managing Information Systems
Operations and Information Management
School of Business

OPIM 5185 Syllabus Winter 2027

Module windows are tentative; the final syllabus and assignment deadlines will be posted in HuskyCT.

Course and Instructor Information

OPIM 5185 - 730 Introduction to Data Analytics and Managing Information Systems
University of Connecticut | Winter 2027 | Lecture - Stand Alone

Class Details

Status	Open	**Academic Career**	Graduate
Class Number	1115	**Dates**	12/28/2026 - 1/15/2027
Session	Intersession	**Grading**	Graded
Units	3 units	**Location**	Hartford Campus
Instruction Mode	Online Asynchronous	**Campus**	Hartford
Class Components	Lecture - Stand Alone Required		

Meeting Information

Days & Times	Room	Instructor	Meeting Dates
TBA	No Room Required - Online	Ramesh Shankar	12/28/2026 - 01/15/2027

Enrollment Information

Enrollment Requirements Not open for credit to students who have passed OPIM 5165, 5181, or 5182.

Description

Introduction to key issues and concepts in data analytics. Delineates differences between standard statistical analysis, including model estimation and evaluation, and the data driven approach of data analytics. Emphasis on critical issues underlying almost all data analytics projects, including data quality (accuracy, objectivity, and reliability), missing values, outliers, and data standardization. Introduction to basic analytics techniques and processes. Prepares students to execute IT-related responsibilities effectively, and to be able to do so even as the set of available technologies changes over time. Presents students with frameworks that let them analyze business situations involving IT in a structured way. Students will develop sophisticated understanding of the links between IT, business strategy, and business process. Students will also gain an appreciation of the organizational and management practices that complement IT investments.

Instructor: Ramesh Shankar

Email: ramesh.shankar@uconn.edu

Office Hours and Availability: We can meet over Teams as needed, please request via email

Course Materials

Required access is a four-month Cengage MindTap subscription costing $169.99. This subscription provides access to both course textbooks. Obtain access before the course begins and use the enrollment instructions provided in HuskyCT.

Required Textbooks: Business Analytics: Descriptive, Predictive, Prescriptive (Cengage) for the statistics portion, and New Perspectives Collection – MS 365 & Office, 6th edition, by Campbell, Carey, and Shaffer (Cengage) for the Excel portion.

Required Platform: Cengage MindTap with assigned online activities and SAM assignments and exams. Use the statistics and Excel course links provided in HuskyCT to access the respective materials.

Additional Materials: Module readings, datasets, instructional videos, practice exercises, cases, and project instructions will be provided or linked in HuskyCT.

Course Description

Introduction to key issues and concepts in data analytics. Delineates differences between standard statistical analysis, including model estimation and evaluation, and the data-driven approach of data analytics. Emphasis on critical issues underlying almost all data analytics projects, including data quality (accuracy, objectivity, and reliability), missing values, outliers, and data standardization. Introduction to basic analytics techniques and processes. Prepares students to execute IT-related responsibilities effectively, and to be able to do so even as the set of available technologies changes over time. Presents students with frameworks that let them analyze business situations involving IT in a structured way. Students will develop a sophisticated understanding of the links between IT, business strategy, and business process. Students will also gain an appreciation of the organizational and management practices that complement IT investments.

This hands-on MBA course develops your ability to prepare business data, analyze uncertainty and relationships, build and evaluate predictive models, and communicate conclusions that managers can use. You will begin with Excel and progress through descriptive statistics, probability, inference, regression, forecasting, and machine learning. Throughout the course, examine data quality, assumptions, limitations, and the business implications of your results.

The Winter version retains the learning objectives and module sequence of the course design plan in an accelerated three-week format. The proposed schedule compresses the plan's module durations; it does not reduce the intended scope of learning.

Course Objectives

Upon successful completion of this course, you should be able to achieve the following Excel objectives and statistics objectives. The identifiers are retained from the course design plan.

Excel objectives

E1. Prepare data in a systematic manner.

E2. Perform data calculations, including math, statistics, logical functions, and summarizations.

E3. Perform data transformations, including aggregations, filtering and sorting.

E4. Communicate summaries and aggregations via charts and graphs.

E5. Pursue efficiencies in data operations.

Statistics objectives

S1. Summarize data using descriptive statistics and visualizations.

S2. Wrangle and prepare data for analysis.

S3. Reason about uncertainty via probability and statistical inference.

S4. Infer relationships between variables of interest using models.

S5. Predict outcomes using models.

S6. Discover structure and patterns in data.

S7. Evaluate the validity and quality of data-driven conclusions.

Course Outline and Schedule

The following is a proposed accelerated schedule for December 28, 2026–January 15, 2027. Work estimates retain the design plan's module workloads. Some days contain two Excel modules, and some study falls on weekends. January 1 is an observed holiday with no required class activity or submission. Specific graded deadlines and exam windows remain to be confirmed. ***All assignments will be available from day 1. Each assignment has its own due date as specified in table below.***

Module and Topic	Study Window	Topics and Skills	Hrs
1 Excel Basics	Dec 28	Format readable workbooks; calculate values with formulas and functions; copy formulas efficiently using relative and absolute references. **Assignment due end of day (EOD).**	4–5
2 Excel: Displaying Information in a Visual Manner	Dec 28	Select appropriate chart types; modify chart data and design; position charts in worksheets or chart sheets; format charts to communicate clearly. **Assignment due EOD.**	4–5
3 Excel: Working Across Multiple Worksheets and Workbooks	Dec 29	Reference data across worksheets and workbooks; group worksheets; define named cells and ranges; insert hyperlinks; save reusable workbook templates. **Assignment due EOD.** **Exam due EOD. (Available entire day 6 AM – 12 midnight)**	4–5
4 Excel: Managing and Analyzing Data with the Excel Data Tools	Dec 29	Manage large worksheets and structured tables; identify duplicates; check accessibility; sort and filter records; summarize data with functions, charts, and slicers. **Assignment due EOD.**	4–5
5 Excel: Data Synthesis	Dec 30	Combine data from multiple sources; categorize records with logical functions; aggregate and filter by criteria; prepare PivotTable and chart summaries for managers. **Assignment due EOD.**	4–5
6 Excel: What If Analysis	Dec 30	Filter tables and PivotCharts; extend PivotTables with calculated fields and relationships; chart data tables; compare scenarios; use Solver and an option button to build an interactive model. **Assignment due EOD.** **Exam due EOD. (Available entire day 6 AM – 12 midnight)**	4–5
7 Analytics: Descriptive Statistics	Dec 31–Jan 3	Describe variables and data types; explain data collection purposes and sampling limitations; present distributions in tables and graphs; assess what the data can represent. **Assignment due EOD Jan 3rd.**	9
8 Analytics: Probability	Jan 4	Assign event probabilities; calculate conditional, joint, and posterior probabilities; distinguish independence from mutual exclusivity; calculate expected values and variation for discrete uniform, binomial, and Poisson distributions. **Assignment due EOD.**	9
9 Analytics: Unsupervised Machine Learning	Jan 5	Apply principal component analysis; compute distances for quantitative and binary data; compare k-means and hierarchical clustering; mine association rules; analyze text using a bag-of-words approach. **Assignment due EOD.**	9

Module and Topic	Study Window	Topics and Skills	Hrs
10 Analytics: Statistical Inference	Jan 6–7	Select random samples; explain sampling distributions; calculate point estimates, margins of error, and confidence intervals; test means, proportions, and categorical independence; interpret Type I and Type II errors. **Assignment due EOD Jan 7.** **Exam due EOD Jan 7. (Available entire day 6 AM – 12 midnight)**	18
11 Analytics: Linear Regression	Jan 8–10	Estimate simple and multiple regression with dummy variables and quadratic or piecewise terms; assess R-squared and inference conditions; interpret tests and confidence intervals; predict outcomes. **Assignment due EOD Jan 10.**	18
12 Analytics: Time Series Analysis and Forecasting	Jan 11	Identify trend, seasonal, and cyclical patterns; compare forecast accuracy using MAE, MSE, and MAPE; forecast with naïve and historical averages, moving averages, exponential smoothing, and regression. **Assignment due EOD.**	9
13 Analytics: Supervised Machine Learning Regression	Jan 12	Compare RMSE, MAE, and R-squared; evaluate holdout and k-fold performance; predict with nearest neighbors, trees, ensembles, and neural networks; compare feature selection and apply regularization. **Assignment due EOD.**	9
14 Analytics: Supervised Machine Learning Classification	Jan 13–14	Evaluate holdout and k-fold performance; calculate accuracy, sensitivity, specificity, precision, and AUC; classify with logistic regression, nearest neighbors, trees, ensembles, and neural networks; select features and apply regularization. **Assignment due EOD Jan 14.** **Exam due EOD Jan 15. (Available entire day 6 AM – 12 midnight)**	18

Session calendar: UConn Winter Session dates.

Learning Activities and Readings

For Excel modules, complete assigned Cengage readings and videos, work through practice activities, review feedback, and then complete the graded assignment or SAM exam identified in HuskyCT. The design plan identifies Cengage eBook Module 4 for course Module 2, eBook Module 5 for course Module 3, and eBook Module 6 for course Module 4. Remaining reading selections will be identified within the course.

For statistics modules, complete the assigned readings and practice exercises before graded individual work. Use practice quizzes and feedback to check your understanding, then apply the methods to assignments, individual cases, exams, and the team project. Explain the business question, analytical method, findings, and limitations in your submissions.

Course Requirements and Grading

Plan for approximately 40 hours per week during this three-week, three-credit session. Check HuskyCT and your UConn email daily, and begin practice early enough to use the feedback before each graded submission.

Workload basis: UConn Credit Hour policy. The Winter estimate adapts the full course workload to a shorter session.

Summary of Course Grading

The design plan identifies the following assessment categories.

Assessment Category	Course Objectives	Weight
Excel assignments (6 assignments)	E1–E5	10%
Excel SAM exams (2 exams)	E1–E5	20%
Statistics assignments (8 assignments)	S1–S7	30%
Statistics exams (2 exams)	S1–S7	40%

Excel Assignments and SAM Exams

Excel assignments assess workbook preparation, calculations, transformations, visual summaries, and efficient data operations. Use the assigned practice and feedback before submitting graded work. SAM exams assess your ability to perform the designated Excel tasks. *6 assignments, 2 exams, 3 attempts each, about 2 hours per assignment or exam, open book, open notes, delivered via HuskyCT.*

Statistics Assignments and Exams

Assignments and exams assess your ability to select and apply analytical methods, interpret results, and evaluate the validity of conclusions. Show the work and explanation required by each prompt. *8 assignments, 2 exams, 3 attempts each, about 1 hour per assignment, 2 hours per exam, open book, open notes, delivered via HuskyCT.*

Grading Scale

Grade	Percentage range*
A	93–100
A−	90–<93
B+	87–<90
B	83–<87
B−	80–<83
C+	77–<80
C	73–<77
C−	70–<73
D+	67–<70
D	63–<67
D−	60–<63
F	Below 60

Due Dates and Late Policy

All course deadlines use Eastern Time. Consult the final Course Schedule and each assignment's instructions in HuskyCT. Schedule changes will be announced through the course.

Submission deadlines specified in the **Course Outline and Schedule** above. Late submission results in 50% penalty unless granted extension. Extension requests and make-up exam requests only granted for serious, documented reasons (work related travel, deadlines etc. not a valid reason). Missed assignments and exams will lose points unless make-up permitted based on serious, documented reason.

Feedback and Grades

Cengage activities provide feedback on Excel practice and assignments. HuskyCT assignments and exams provide feedback via HuskyCT. Review this feedback before attempting subsequent work. Consult the HuskyCT gradebook and each assessment's rubric to track your progress.

Student Responsibilities and Resources

Review the UConn Online Course Syllabus Addendum for University standards, student resources, and online learning information, including the Student Code, academic integrity, copyrighted materials, communication, registration changes, and nondiscrimination policies.

Academic integrity: All submitted work must comply with UConn's Academic Scholarly and Professional Integrity and Misconduct policy. Acknowledge sources, report analytical results accurately, and follow the stated limits on assistance and collaboration.

Collaboration and Artificial Intelligence: You can discuss with other students, and/or use AI, to help you explain concepts. Collaboration with other students and AI use is not permitted for obtaining answers for assignments or exams.

Communication: Write professionally and respectfully. When asking for analytical or technical help, identify the module, task, and steps you have tried. Use email for personal matters, and follow the course instructions for sharing questions that may help classmates.

Student Authentication: Use your own University and course-platform credentials and keep them private.

Students with Disabilities

Students seeking disability-related accommodations should contact the Center for Students with Disabilities and coordinate approved accommodations with the instructor. CSD can be reached at 860-486-2020 or csd@uconn.edu. Begin this process early, especially for timed assessments and software access.

If you encounter a barrier in a document, video, course platform, or analytical activity, inform the instructor so the issue can be addressed with the appropriate support office.

Software Requirements and Technical Help

- A computer with reliable Internet access and a browser compatible with HuskyCT and the assigned Cengage activities.
- Microsoft Excel compatible with the assigned MS 365 and Office activities, including required data tools, PivotTables, charts, and Solver.
- Access to Cengage MindTap and SAM through the assigned course enrollment process.
- Software to create written submissions and open PDF files.

Help

Use the help resources within HuskyCT and Cengage for platform issues. University technology assistance is available through UConn ITS. Contact the instructor promptly if a technical problem affects a deadline, and retain any error message or support-ticket number.

Minimum Technical Skills

- Send email with attachments; download, name, organize, back up, and upload course files.
- Navigate HuskyCT and Cengage; locate instructions, feedback, announcements, and grades.
- Open and save Excel workbooks, word-processing files, and PDFs; copy and paste text, tables, graphics, and links.
- Work across browser windows and applications; follow software demonstrations and troubleshoot basic access problems.

Evaluation of the Course

You will have an opportunity to evaluate the course through the University's standard student evaluation process. Optional informal feedback may also be requested during the course to help improve the learning experience.