

Introduction to Predict 401

- **Getting started**
 - **Goals**
 - **Materials and videos**
 - **Exams and assignments**
 - **Discussion forum**
- **Course procedures**
- **Course site**
 - **WileyPlus**
 - **Assignments and Tests**
 - **R in Predictive Analytics**
 - **Data analysis assignments**
 - **Essential skills with R**
- **Course success**

Text Books

Required Textbooks

Assigned Reading:

Black, K. (2013). *Business Statistics*. 9th ed. Hoboken, NJ: John Wiley & Sons, Inc.
[ISBN-13: 978-1119334965]

Wilcox, R. R. (2009). *Basic Statistics*. New York, NY: Oxford University Press
[ISBN-13: 978-0195315103]

The biweekly tests and final exam will be based on the material in these texts. *Basic Statistics* by Wilcox presents contemporary developments in the field. It was selected to complement *Business Statistics* by Ken Black.

R References:

Davies, Tilman M. (2016) *The Book of R*, San Francisco, CA: No Starch Press
[ISBN-13: 978-1593276515]

Kabacoff, R. I. (2015) *R in Action*, 2nd ed. Shelter Island, NY: Manning Co.
[ISBN-13: 978-1617291388]

Serve as reference aids during this course and future courses. You will find them of value for the Programming in R test, the two data analysis assignments, and the optional *Lessons in R*.

Electronic versions of these texts are available from different vendors. Check the syllabus for information.

Course Overview for Predict 401

Session	Black*	Recommended	Wilcox/Downey*	R Programming*
1	Chapters 1 & 2 Introduction Charts and Graphs	Black Videos 1, 2	(Be aware of the listings in library reserves.)	Quick Start Guide for R** <i>Calculations with R Week 1</i>
1		Sync Session		
2	Chapter 3 Descriptive Statistics	Black Videos 3, 4	Wilcox Chapters 2&3	<i>Optional R Lessons 1, 2 & 3</i> <i>Calculations with R Week 2</i>
2	Self-administered Test			
3	Chapters 4 & 5 Probability Discrete Distributions	Black Videos 5, 6, 7, 8 (Probability theory should be a review.)	Think Bayes (check library reserves)	<i>Optional R Lessons 4 & 5</i> <i>Calculations with R Week 3</i>
3		Sync Session		Programming Test in R
4	Chapters 6 & 7 Continuous and Sampling Distributions	Black Videos 9, 10 (Probability theory should be a review.)	Wilcox Chapters 4 & 5	<i>Optional R Lessons 6 & 7</i> <i>Calculations with R Week 4</i> Data Analysis #1 Video
4	Self-administered Test			
5	Chapter 8 Inference about Parameters	Black Video 11	Wilcox Chapter 6	<i>Optional R Lesson 8</i> <i>Calculations with R Week 5</i>
5		Sync Session		Data Analysis Using R
6	Chapters 9 & 16 Single Population Inference Categorical Data	Black Videos 12, 13, 14, 15, 16	Wilcox Chapter 12	<i>Optional R Lesson 9</i> <i>Calculations with R Week 6</i> R Test #2 Video
6	Self-administered Test			
7	Chapter 10 Two Population Inference	Black Videos 17, 18, 19	Wilcox Chapter 9	<i>Optional R Lesson 10</i> <i>Calculations with R Week 7</i>
7		Sync Session		Programming Test in R
8	Chapters 11&12 Analysis of Variance, Simple Regression	Black Videos 20, 21	Wilcox Chapter 10	<i>Optional R Lesson 11</i> <i>Calculations with R Week 8</i> Data Analysis #2 Video
8	Self-administered Test			
9	Chapters 12&13 Multiple Regression	Black Video 22	Wilcox Chapter 8	<i>Optional R Lesson 12</i> <i>Calculations with R Week 9</i>
9		Sync Session		
10	Final			Data Analysis Using R

* Refer to the syllabus for details such as event and deadline dates and times.

** The Quick Start Guide for R is posted on the course site. It is assigned reading.

The Programming Tests in R assume knowledge of the Quick Start Guide for R. The R-related videos shown in red type are recommended. The R-related listings in italics are supplemental and optional. They do not carry any grading weight. Attendance at Sync sessions is optional. Sync sessions address course concepts, problems, the data analysis assignments, and contemporary methods. Review of the session recordings and handouts is recommended. The six tests highlighted in red are self-administered. The final highlighted in blue is proctored. The tests total 275 points. The two data analysis assignments in green total 125 points. Discussion topics account for 100 points. There are 500 total points for the course.


Predict 401 Course Procedures


- Each week there are two discussion topics. One involves subject matter, the second personal reflections. Class participation is expected. (5 points for the subject matter topic, 3 points for the reflections topic plus 2 points for class participation making 10 points overall.)
- Discussion topics come available each Monday at 12:01 am and close the following Sunday at 8:00 pm. It is necessary to post your initial comments before the system reveals the postings made by the class.
- There are four tests on the reading assignments. These come available Monday at 12:01 am CST and close the following Sunday two weeks later at 11:55 pm CST.
- The proctored final exam comes available prior to the end of the course. Check the syllabus for specific dates and time. Information regarding arranging with the proctoring organization for scheduling your final exam is posted on the course site in the module for Week Ten.
- Tests on the readings and the final are automatically graded by Canvas. Do not submit until you are completely finished. **There is no retest.**
- The two programming tests are graded by the instructor. There are two data analysis assignments that require use of R. Both are graded by the instructor. Study the “Quick Start Guide for R” in advance to prepare.
- Without prior arrangement, any late assignment may receive a 1% point deduction for each hour late totaling to a maximum 25% deduction. (For example, ten hours late means a 10% deduction.)


Predict 401 Course Site


[Home](#)
[Syllabus](#)
[Announcements](#)
[Course Reserves](#)
[Modules](#)
[People](#)
[Grades](#)
[Quizzes](#)
[Sync Session Link](#)
[Conferences](#)
[Collaborations](#)
[Discussions](#)
[Pages](#)
[Files](#)
[Assignments](#)
[Outcomes](#)
[Blue Jeans](#)
[CTEC](#)
[Settings](#)


▼ MSPA 401 - Introduction to Statistical Analysis


 Predict 401 Introductory Video (required)

 Course Overview


 Predict 401-DL Syllabus


 About Your Instructor & TA


 [Getting to Know Canvas](#)

 [NU's Canvas Student Center](#)

▼ Communications and Questions

 Student Introductions

 Q & A

 R Programming Questions


- **Announcements and emails are used to communicate with the class. Be sure to set your notification preferences. (“Notifications” is found under “Settings”) Everyone is expected to post a personal introduction.**
- **Post questions within the Communications and Questions module.**

Modules on Course Site

Week 1: Introduction to Statistics, Charts, and Graphs

 Week 1 Reading & Materials

 Quick Start Guide for R (required)
0 pts

 Discussions (close Sunday 8 pm CST):


 "The Privacy Pickle"

 Week 1 Reflection + Review

 Optional R Lessons:

 Calculations with R Week 1

Business Statistics Videos + WileyPLUS

 WileyPLUS Read, Study & Practice (Full Digital Textbook)

 How-To Access Lecture Videos in WileyPLUS


 WileyPLUS Video Workaround.pdf

 Accessing WileyPlus Through Chrome

 WileyPLUS Support

 Disabling Mixed Content Blocking

Sync Session Recordings and Handouts

 Access to Sync Sessions

Week 1 Reading & Materials



Learning Objectives

After this session, the student will be able to:

- List examples of statistical applications in business.
- Describe different types of data displays.
- Define important statistical terms.
- Explain the difference between variables, measurement, and data.
- Define and compare four different levels of data.
- Construct a frequency distribution.
- Construct different types of data graphs.
- Construct and interpret two-variable tables and scatter plots.
- Write simple programs using the language R.



Assigned Reading

Textbook

Please read Chapters 1 and 2 pages 2-49:

Black, K. (2013). *Business Statistics*. (8th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Problem Solutions (optional)

[Black_8e_Student_Solutions_Manual_Ch01.pdf](#)

[Black_8e_Student_Solutions_Manual_Ch02.pdf](#)



WileyPLUS Lecture Videos

- **Chapter 1.** Levels of Data Measurement
- **Chapter 2.** Stem-and-Leaf Plot

Navigate to the WileyPLUS Read, Study & Practice link on the Modules page to locate and view all lecture videos.



Assignment

- Install R
- Read [The Quick Start Guide to R \(required\)](#)
- View the video *Calculations with R Week 1 (optional)*

This week requires the installation of R software and the completion of *The Quick Start Guide to R*. **Students should be aware** there is a required, self-administered test of programming in R due the end of the third session. This test is open book, open notes and carries 15 points toward the final grade. The test questions are based on this guide and will require submission of R script. It is to be handed in and will be graded by the instructor.

Students should be aware that there is a required self-administered test to be completed by the end of Week 2. This test will cover material from Weeks 1 and 2. This is open book, open notes. R may be used for computation. This test has 10 points toward the final grade.

Students should be aware the first Data Analysis Assignment is due the end of Session #5. This assignment should be started early in the quarter. Do not wait until the last minute. The assignment instructions and data are available in a separate module on the course site. This report carries 100 points toward the final grade.

The video *Calculations with R Week 1* demonstrates how base R can be used to solve problems in the *Business Statistics* reading assignment. Future sessions will have one or more optional practice lessons using R for data analysis. Each lesson is numbered corresponding to a chapter in *Business Statistics*. These lessons, the associated data, solution code and answers are posted within the Course Content area of the course shell. These lessons carry no point value.

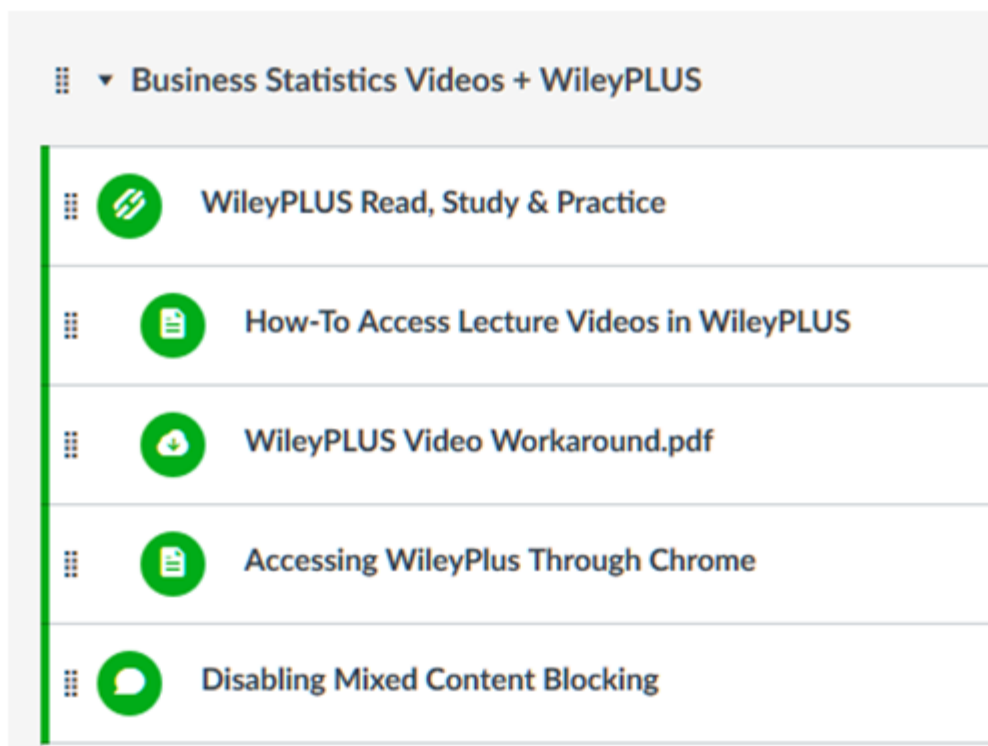
WileyPlus

WileyPLUS accompanies *Business Statistics*. It provides a digital textbook, videos, databases, applets, self-assessment exercises, supplementary problems and case studies.

Do not purchase an access code from a third party vendor!!!









Options:

- **Abbott Hall Bookstore**
- **Online via Canvas**



+ I have a Registration Code. [What's this?](#)

- I want to purchase instant access to WileyPLUS. [What's this?](#)

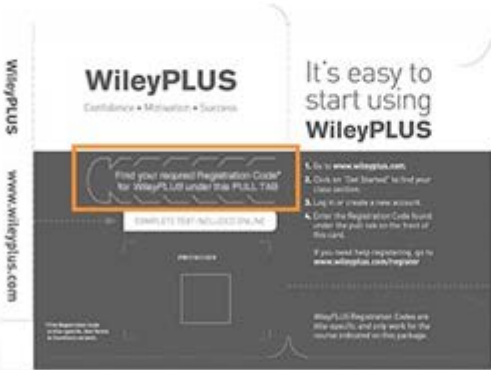
 WileyPLUS Instant Access only What's this? Includes Online-only version of book	US \$100.00	Add to cart >		
Select a bundle to save!				
 WileyPLUS Instant Access US \$100.00	+  Looseleaf What's this? Full Price: US \$32.95 US \$30.00	Bundle Price US \$130.00 US \$2.95 savings!	Add to cart >	
 WileyPLUS Instant Access US \$100.00	+  eBook What's this? Full Price: US \$80.00 US \$18.00	Bundle Price US \$118.00 US \$62.00 savings!	Add to cart >	
 WileyPLUS Instant Access US \$100.00	+  Looseleaf Full Price: US \$32.95 US \$30.00	+  eBook Full Price: US \$80.00 US \$18.00	Bundle Price US \$148.00 US \$64.95 savings!	Add to cart >

If you click on I have a Registration Code in the window above, the page below appears. You can enter your code, or purchase a code or use a 14 day Grace Period and purchase later.

- I have a Registration Code. [What's this?](#)

Continue >

Registration code is located under the PULL TAB on your WileyPLUS card as highlighted below



+ I want to purchase instant access to WileyPLUS. [What's this?](#)

+ I'm not ready to buy, I'd like to use the 14 day Grace Period. [What's this?](#)

Class Section: 2016WI_PREDICT_401-DL_SEC55:2016WI_PREDICT_401-DL_SEC55 Introduction to Statistical Analysis - started ▼



[Lecture Videos](#)



[Applied Skills Videos](#)



[ORION: Personalized Practice](#)



[Excel Database](#)



[Minitab Databases](#)

CONTENTS

Chapter 1. Introduction to Statistics ▼

Select a Section ▼

Select a Study Objective ▼

CHAPTER RESOURCES

Reading Content

[Chapter Opener](#)

[1.1 Statistics in Business](#)

[1.2 Basic Statistical Concepts](#)

[1.3 Variables and Data](#)

[1.4 Data Measurement](#)

[Summary](#)

[Key Terms](#)

[Supplementary Problems](#)

[Analyzing the Databases](#)

[Case: Digiorno Pizza: Introducing A Frozen Pizza To Compete With Carry-out](#)

PRACTICE

[Chapter 01 Practice Assignment](#)

ORION: Build your Proficiency

[Go to ORION for personalized practice](#)

Videos

[Lecture Video: Levels of Data Measurement](#)

Concept Review Activities

[Statistics in Business](#)

[Statistics Defined](#)

[Descriptive and Inferential Statistics](#)

[Data Measurement](#)

[Comparisons of the Four Levels of Data](#)

Interactive Multimedia

[Decision Dilemma: Statistics Describe the State of Business in India's Countryside](#)

[Decision Dilemma Solved: Statistics Describe the State of Business in India's Countryside](#)

[Flash Cards: Chapter 1](#)

[Crossword Puzzle: Chapter 1](#)

Additional Resources

[Student Solutions Manual: Chapter 01](#)

[Excel Manual: Chapter 01](#)

[KaddStat Excel Plug In](#)

The mixed content blocker on your browser must be disabled to access WileyPlus. Videos can be downloaded to your pc from WileyPLUS. Once the video is started, right click and “save as” to your machine. Alternatively, they can be viewed within Chrome or IE.

WileyPlus Videos

[Lecture Video: Levels of Data Measurement](#)

[Lecture Video: Stem-and-Leaf Plot](#)

[Lecture Video: Computing Variance and Standard Deviation](#)

[Lecture Video: Understanding and Using the Empirical Rule](#)

[Lecture Video: Constructing and Solving Probability Matrices](#)

[Lecture Video: Solving Probability Word Problems](#)

[Lecture Video: Solving Binomial Distribution Problems, Part I](#)

[Lecture Video: Solving Binomial Distribution Problems, Part II](#)

[Lecture Video: Solving Problems Using the Normal Curve](#)

[Lecture Video: Solving for Probabilities of Sample Means Using the z Statistic](#)

[Lecture Video: Confidence Intervals](#)

[Lecture Video: Establishing Hypotheses](#)

[Lecture Video: Two-Tailed Tests](#)

[Lecture Video: Type I and Type II Errors](#)

[Lecture Video: Hypothesis Testing Using the z Statistic](#)

[Lecture Video: Understanding p-Values](#)

[Lecture Video: Determining Which Inferential Technique to Use, Part I : Confidence Intervals](#)

[Lecture Video: Determining Which Inferential Technique to Use, Part II : Hypothesis Tests](#)

[Lecture Video: t Test for Two Samples](#)

[Lecture Video: Computing and Interpreting a One-Way ANOVA](#)

[Lecture Video: Testing the Regression Model I : Predicted Values, Residuals, and Sum of Squares of Error](#)

[Lecture Video: Testing the Regression Model II : Standard Error of the Estimate and r squared](#)

Getting Started with R

New users face a steep learning curve.

Mastery of R requires study, research and practice.

- 1. R can be obtained at <http://cran.r-project.org/>.**

RStudio is recommended for new users of R.

- 2. Read and complete the “Quick Start Guide for R”.**

- 3. Watch the three lynda.com videos deals with R.**

- 1) Up and Running with R,
- 2) R Statistics Essential Training, and
- 3) Code Clinic: R.

- 4. Take advantage of reference materials and the internet.**

- 5. If you have time,**

- a) Watch the R-related videos posted on the course site.**

- b) Try out SWIRL.**

- c) Study and complete the optional “Lessons in R”.**

- 6. Ask questions.**

Learning R

⋮	▼ R Tutorial Materials
⋮	↓ Suggestions on Getting Started with R.pdf
⋮	Tutorials
⋮	📄 Quick Start Guide for R (required reading)
⋮	📄 Lynda.com Videos Dealing with R (optional)
⋮	↓ SWIRL.docx (optional)
⋮	📄 Lessons in R (Optional)

Essential R Programming Skills


- Read data files into a data frame.
- Install R packages.
- Use essential R functions.
- Write a “for” loop.
- Write a function in R.
- Generate graphics.
- Fit a regression model.

Programming and Data Analysis

⋮ ▾ Programming and Data Analysis Assignments


⋮  Assignment Submission Example

⋮ Programming Tests

⋮  Instructions for Use of RMarkdown with the Programming Tests.pdf

⋮  Programming with R Test #1
Oct 8 | 25 pts

⋮  Programming with R Test #2
Nov 5 | 50 pts

⋮  Data Analysis Assignment #1
Oct 22 | 50 pts


⋮  Report Grading.pdf

⋮  Data Analysis Report Example

⋮  For Mac Users with Safari

⋮  Example Data Analysis Video #1

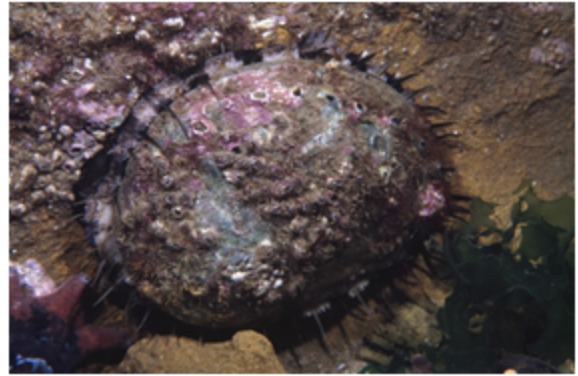
⋮  DA #1, self-check

⋮  Data Analysis Assignment #2
Dec 3 | 75 pts

⋮  Example Data Analysis Video #2

⋮  DA #2, self-check

Data Analysis Assignments



Purpose: Develop statistical analysis skills, and practice R programming.

Assignment #1: Exploratory data analysis of an observational study.

Assignment #2: Model building and development of binary decision rules.

Course Success Depends On Self Study, asking Questions and Effective Time Management

- **Complete assigned readings**
 - WileyPLUS Videos
 - Sync Sessions
- **Develop problem solving skills**
 - Review textbook of examples
 - Practice doing calculations
- **Learn R programming**
 - Complete *Quick Start Guide for R*
 - Watch videos
- **Participate in discussion forums**

Evaluation

- **Four reading quizzes**
- **Two R programming tests**
- **Two data analysis reports**
- **Discussion postings**
- **Final Exam**