

# **Syllabus**

## **SCHOOL OF BUSINESS AND MANAGEMENT** BUS 444: Predictive and Prescriptive Analytics

5 Credits Effective: Summer 2020/2021

Access to the Internet is required. All written assignments must be in Microsoft-Word-compatible formats. See the library's APA Style Guide tutorial for a list of resources that can help you use APA style.

## FACULTY

Faculty Name: FACULTY NAME

Contact Information: CONTACT INFORMATION

### [INSTRUCTOR MAY INSERT PERSONAL MESSAGE IF DESIRED]

### **COURSE DESCRIPTION**

Predictive and prescriptive analytics encompass more advanced analytics techniques which are driving the next wave in the business intelligence world. This course examines the key principles of predictive and prescriptive analytics and evaluates methods for applying the techniques encompassed by these methods to core enterprise functions such as marketing, human resources, and logistics. Students use these key concepts to implement and deploy predictive and prescriptive solutions to a variety of business scenarios and develop the technical skills to compile and test various automation and linear programming solutions in Python.

### **COURSE RESOURCES**

Required and recommended resources to complete coursework and assignments are found on the course <u>Reading List</u>. The reading list can be found under Course Information in Blackboard as well as from the library homepage.

Note: Required resources that must be purchased by the student are tagged "Purchase from a vendor of your choosing." Required resources with a direct link, "Available through CityU Library", are available at no cost to students.

Students in Canada will see required resources they need to purchase tagged "Purchase from the Canadian Bookstore." Students outside the U.S. and Canada should contact their advisor or textbook coordinator for additional information.

### **COURSE OUTCOMES**

In this course, learners:

- Analyze predictive and prescriptive analytics business scenarios and develop potential solutions using the BADIR (Business Question, Analytics Plan, Data Collection, Insights, Recommendation) framework.
- Differentiate between predictive and prescriptive analytics and examine these techniques in various business environments.
- Examine the principles of predictive analytics and evaluate methods for applying these principles to enterprise functions.
- Examine the principles of prescriptive analytics and evaluate methods for applying these principles to enterprise functions.
- Compile basic Python scripts to successfully model predictive and prescriptive techniques such as linear programming.

### **OVERVIEW OF COURSE GRADING**

The grades earned for the course will be derived using City University of Seattle's decimal grading system, based on the following:

| <b>Overview of Required Assignments</b>          | % of Final Grade |
|--|------------------|
| Instructor Determined Assignments and Activities | 20%              |
| Weekly Python Exercises                          | 40%              |
| Predictive Analytics Assessment                  | 20%              |
| Prescriptive Analytics Assessment                | 20%              |
| TOTAL  | 100%             |

### SPECIFICS OF COURSE ASSIGNMENTS

The instructor will provide grading rubrics with more detail as to how this assignment will be graded.

### Instructor Determined Assignments and Activities

Whether in class, online, or in a mixed mode setting, students will be graded on their participation in class discussions; ability to present, explain, or defend alternative viewpoints; and the degree to which they have mastered the concepts and principles inherent in the study of business management. Written work will be assessed not only on relevance to the subject presented, but also on adherence to good written form, APA style, and professional presentation. The instructor may also choose to create additional activities to support learning in the classroom or online.

| Components | % of Grade |
|------------|------------|
| Engagement | 100%       |
| TOTAL      | 100%       |

#### Weekly Python Exercises

These exercises walk students through basic Python programming techniques and are designed for nonprogrammers. The activities will provide students with useful methods compiling and testing code that automates tasks and performs linear optimization. Specific Python programming techniques to code and test include manipulating lists and strings, reading and writing files, organizing files, debugging, performing web scraping, manipulating various file types, and performing linear optimization. Students will submit their code each week. Code should be well commented so that any use could follow each line of code and its purpose and the code should be organized neatly and run correctly with no errors or bugs.

| Components             | % of Grade |
|------------------------|------------|
| Delivery (Python)      | 40%        |
| Documentation (Python) | 20%        |
| Solution (Python)      | 40%        |
| TOTAL                  | 100%       |

### Predictive Analytics Assessment

Throughout the course, students will be presented with different scenarios involving enterprise use of predictive analytics. The instructor will assign a case or provide guidelines to use in selecting a case for analysis. If students select the case, they will need to submit it to the instructor for approval. The case analysis will focus on the application of predictive analytics and students will synthesize their findings and provide recommendations. Adherence to APA formatting is required and the case response should be 1500-2500 words in length (excluding cover page and reference page) and include a minimum of three (3) references.

| Components   | % of Grade |
|--|------------|
| Analysis   | 75%        |
| Style including Structure, Flow, Grammar, and Spelling | 15%        |
| APA  | 10%        |
| TOTAL  | 100%       |

### Prescriptive Analytics Assessment

Throughout the course, students will be presented with different scenarios involving enterprise use of prescriptive analytics. The instructor will assign a case or provide guidelines to use in selecting a case for analysis. If students select the case, they will need to submit it to the instructor for approval. The case analysis will focus on the application of predictive analytics and students will synthesize their findings and provide recommendations. Adherence to APA formatting is required and the case response should be 1500-2500 words in length (excluding cover page and reference page) and include a minimum of three (3) references.

| Components   | % of Grade |
|--|------------|
| Analysis   | 75%        |
| Style including Structure, Flow, Grammar, and Spelling | 15%        |
| APA  | 10%        |
| TOTAL  | 100%       |

### **COURSE POLICIES**

### Late Assignments

A critical aspect of management is to meet predefined deadlines. Therefore, all assignments are expected to be submitted when due. No late assignments are accepted. Life-situations do occur. When an issue arises coordinate with the instructor PRIOR TO the assignment's due date and the due date may be adjusted. It is in the best interest of the student to ensure that all assignments are submitted on time.

### Participation

Class participation will be evaluated during class. Participation includes being prepared for class discussions and contributing meaningful content when appropriate. It also includes individual effort contributed to team projects.

### **Professional Writing**

Assignments require error-free writing that uses standard English conventions and logical flow of organization to address topics clearly, completely, and concisely. CityU requires the use of APA style.

### **UNIVERSITY POLICIES**

You are responsible for understanding and adhering to all of City University of Seattle's academic policies. The most current versions of these policies can be found in the <u>University Catalog</u> that is linked from the CityU Web site.

### **Title IX Statement**

City University of Seattle and its faculty are committed to supporting our students and seeking an environment that is free of bias, discrimination, and harassment. If you have encountered any form of sexual misconduct (e.g. sexual assault, sexual harassment, stalking, domestic or dating violence), we encourage you to report this to the University. If you speak with a faculty member about an incident of misconduct, that faculty member must notify CityU's Title IX coordinator and share the basic fact of your experience. The Title IX coordinator will then be available to assist you in understanding all of your options and in connecting you with all possible resources on and off campus.

To view CityU'S sexual misconduct policy and for resources, please visit the <u>Campus Safety</u> and <u>Title IX</u> Page in the my.cityu.edu portal.

### **Scholastic Honesty**

Scholastic honesty in students requires the pursuit of scholarly activity that is free from fraud, deception and unauthorized collaboration with other individuals. You are responsible for understanding CityU's policy on scholastic honesty and adhering to its standards in meeting all course requirements. A complete copy of this policy can be found in the <u>University Catalog</u> in the section titled *Scholastic Honesty* under *Student Rights & Responsibilities*.

#### Attendance

Students taking courses in any format at the University are expected to be diligent in their studies and to attend class regularly.

Regular class attendance is important in achieving learning outcomes in the course and may be a valid consideration in determining the final grade. For classes where a physical presence is required, a student has attended if s/he is present at any time during the class session. For online classes, a student has attended if s/he has posted or submitted an assignment. A complete copy of this policy can be found in the <u>University Catalog</u> in the section titled *Attendance Policy for Mixed Mode, Online and Correspondence Courses*.

### **SUPPORT SERVICES**

#### **Disability Services Accommodations Statement**

Students with a documented disability who wish to request academic accommodations are encouraged to contact Disability Support Services to discuss accommodation requests and eligibility requirements.

Please contact Disability Support Services at <u>disability@cityu.edu</u> or 206.239.4752 or visit the <u>Disability</u> <u>Support Services</u> page in the my.cityu.edu portal. Confidentiality will be observed in all inquiries. Once approved, information about academic accommodations will be shared with course instructors.

### **Library Services**

CityU librarians are available to help you find the resources and information you need to succeed in this course. Contact a CityU librarian through the <u>Ask a Librarian</u> service, or access <u>library resources and</u> <u>services online</u>, 24 hours a day, seven days a week.

### Smarthinking

As a CityU student, you have access to 10 free hours of online tutoring offered through Smarthinking, including writing support, from certified tutors 24 hours a day, seven days a week. Contact CityU's Student Support Center at <u>help@cityu.edu</u> to request your username and password.