

Department of Economics and Business Analytics

college of Business

Course Information

BANL 6900

Business Analytics Capstone

Credit Hours: 3 credits

Fall 2022

F 3:30 am - 6:15 pm

Orange Campus M112

Office Hours: MTW 1pm – 2pm

Faculty Contact Information

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COURSE SYLLABUS

Course Description

This course challenges students to integrate their data analytics skills and business domain knowledge. Students use predictive modeling, data management, business process modeling, and data visualization techniques to conduct a real-world analytics project using live data from sponsoring organizations, in-house research projects, joint faculty-student collaborations, or based on student-specific interests. Students work together in teams and use their project management skills to complete the project within scope, time, and budget constraints.

Course Format

The course will be delivered on-ground in the classroom. Class meeting dates and times are provided in the Course Schedule section.

Required Text

*There is no required textbook in this course. However, we will use parts of the following open-source, free books:*

Course Goals

The goal of this course is:

1. To help students apply their analytics knowledge on an actual business problem successfully,
2. To help students communicate their findings appropriately for the right audience in the right medium

Course Learning Objectives

At the end of this course, students should be able to:

1. Formulate business problems, develop solution models, and evaluate solution alternatives.
2. Use three primary areas of analytics – descriptive, predictive, and prescriptive.
3. Write a written report and make an oral presentation summarizing findings of the analysis

Course Requirements & Assessment

Expectations

The Capstone course is designed to demonstrate your accumulated training in Business Analytics in a single original project of your choice, subject to the instructor’s approval. This course focuses on a specific project that will be explored in consultation with the instructor of the course and possibly other faculty mentors. The completed project will include a project report, an interactive visualization publishable on a website, and a final oral presentation of your project. This course necessitates multiple drafts of your research report that is subjected to peer review and regular feedback from your instructor. The primary focus of your project will be finding a solution to a business problem using data and analytics. You may address U.S. business problems, or problems in other organizations globally.

Project

Each student will complete a capstone project. A larger project can be completed by two students with the permission of the instructor. You should follow the steps below:

1. Propose a project topic. Write a paragraph what you wish to explore and identify the business problem you want to investigate.
2. Complete a literature review to see what has been done so far about this problem.
3. Explain how you intend to explore your project topic and solve the business problem. You may use a variety of approaches, including descriptive, predictive, and prescriptive analytics, and procedures from statistics, and data mining.
4. Explain how you intend to collect data for the approach you like to use to solve the business problem.
5. Apply the chosen method on the data.
6. Report the findings in proper formats: a) written report in Word, b) PowerPoint presentation, c) interactive website visualization using Shiny app

Exams

There is a midterm exam. It will be take-home. You will be given 24 hours to complete this exam. There is no final exam.

Assignments

There will be several homework assignments during the semester. These assignments may involve case readings, coding, visualizing, data mining, or different types of software use. You may be called to present your homework solution to the class and lead the discussion. Your answer for each homework should be uploaded to Canvas by the due date. If a submission is late, it will receive no credit. Contact the instructor if you believe that extenuating circumstances prevail but be aware that exceptions will be made only for truly exceptional situations.

**Class Meetings**

In each class, the schedule below will be carried out:

1. Professor’s lecture (30 minutes)
2. Homework presentation by a student and class discussion (30 minutes)
3. Break (15 minutes)
4. Project work (remaining class time)

**Attendance and Class Participation**

You are expected to participate in all class activities, and you should be prepared to contribute to the discussions and class work. This class moves at a demanding pace and requires consistent attendance to be successful. Attendance will be taken but will not be graded. It is recognized that absences may be unavoidable due to illness or family emergency. In this event, students are expected to keep up with their readings and assignments. Absences for more than 2 weeks is detrimental to a student’s ability to keep up with the course work; in this event, the instructor’s permission is required for satisfactory completion of the course. Whether excused or not, excessive absences may result in a failing grade since these signify a failure to fulfill course requirements.

**Grading**

Grades earned are based on your performance on assignments, midterm exam and the project.

|  |  |
| --- | --- |
| **Items** | **Percentage or Points** |
| Assignments | 25% |
| Midterm Exam | 25% |
| Project Written Report | 20% |
| Project Web Visualization | 20% |
| Project Oral Presentation | 10% |
| Total | 100% |

|  |  |  |  |
| --- | --- | --- | --- |
| **Grades Scored Between** | | | **Letter Equivalent** |
| 97 | to | 100 | A+ |
| 93 | to | Less than 97 | A |
| 90 | to | Less than 93 | A- |
| 87 | to | Less than 90 | B+ |
| 83 | to | Less than 87 | B |
| 80 | to | Less than 83 | B- |
| 77 | to | Less than 80 | C+ |
| 73 | to | Less than 77 | C |
| 70 | to | Less than 73 | C- |
|  |  | Less than 70 | F |

Course Outline/Schedule

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Date** | **Project** | **Lecture** |
| 1 | 9/2 |  | Review syllabus; business analytics cycle |
| 2 | 9/9 | Identify the project topic. Identify business problem. | Reproducible coding; Rmarkdown |
| 3 | 9/16 | Data sources; government sites, Kaggle.com |
| 4 | 9/23 | Literature review. Formalize problem definition. Identify the decision situation. Understand objectives, requirements, constraints | How to conduct library research; google scholar |
| 5 | 9/30 | Web scraping |
| 6 | 10/7 | Data requirements, and data collection. Identify modeling methods and approaches. | Advanced modeling techniques |
| 7 | 10/14 | What is Shiny app? part1 |
| 8 | 10/21 | MIDTERM EXAM |  |
| 9 | 10/28 | Model implementation, and evaluation. Finalize best alternative | Oral communication and public presentations |
| 10 | 11/4 | Written communication and writing a professional report |
| 11 | 11/11 | Writing project report and developing interactive visualizations | Shiny App – part2 |
| 12 | 11/18 | Shiny App – part3 |
| 13 | 12/2 | Project Presentations |  |
| 14 | 12/9 |  |
|  | FINAL EXAM DATE | Submission of the final project report and website visualization |  |

Online Proctoring

Online exams and quizzes, if given, in this course will require online proctoring. Therefore, students will be required to have a webcam (USB or internal) with a microphone when taking an exam or quiz. Setup information will be provided prior to taking the proctored exam. For additional information about online proctoring, you can visit the online proctoring student FAQ.

All students should review the syllabus and the requirements for online testing using video or other video utilization in the course in order to determine if they wish to remain in the course. Enrollment in the course is an agreement to abide by and accept all terms. Remember that you may elect to drop or withdraw from this course before the end of the drop/add period.

If you are a student who believes that you require a reasonable accommodation related to camera usage for any assignment in this course, a representative of the Accessibility Resource Center (ARC) will review your request so that appropriate accommodations can be arranged. Students requesting accommodation(s) must be registered with the Accessibility Resource Center (ARC), and if not, must work with staff in the Accessibility Resource Center (ARC) to ensure that documentation of a disability is on file.

If you are a student with concerns regarding camera usage as a component in this course that does not rise to the level for a requested accommodation from the Accessibility Resource Center and/or your ability to participate in this course due to technology, a representative of the Dean of Students Office will review your request so that appropriate assistance can be arranged.

To request a reasonable accommodation or express concerns regarding the camera usage component of this course, please complete the online Camera Exemption Request Form.

The Accessibility Resource Center can be reached at (203) 932-7332 or by email at AccessibilityResCtr@newhaven.edu. For additional information, please refer to the Accessibility Resource Center (ARC) website at www.newhaven.edu/campusaccess. For additional assistance from the Dean of Students Office, please contact: deanofstudents@newhaven.edu. If you require assistance with the technology requirement, please visit the Student Technical Support page.

Diversity Statement

We value human diversity in all its richly complex and multi-faceted forms, whether expressed through race and ethnicity, culture, political and social views, religious and spiritual beliefs, language and geographic characteristics, gender, gender identities and sexual orientations, learning and physical abilities, age, and social or economic classes. We respect the value of every member of the class, and everyone in the class is encouraged to share his or her unique perspective as an individual, not as a representative of any category. Multicultural and intercultural awareness and competencies are key leadership skills, and we intend to present material and classroom activities that respect and celebrate diversity of thought, background, and experience.

Reporting Bias Incidents

At the University of New Haven, there is an expectation that all community members are committed to creating and supporting a climate which promotes civility, mutual respect, and open-mindedness. There also exists an understanding that with the freedom of expression comes the responsibility to support community members’ right to live and work in an environment free from harassment and fear. It is expected that all members of the University community will engage in anti-bias behavior and refrain from actions that intimidate, humiliate, or demean persons or groups or that undermine their security or self-esteem.

[University-wide Academic Policies](about:blank)

A continually-updated list of University-wide academic policies and descriptions of key university student resources, can be found on Canvas. You can access them by simply clicking on the (?) help button.

The University-wide academic policies include (but are not limited to) the University’s attendance policy, procedures for both adding / dropping a course and course withdrawals, an explanation for the sorts of circumstances where incomplete (INC) grades could be considered by the faculty, and the academic integrity policy (among others). Also, in this location you will find information regarding the process for reporting bias and topics related to our maintaining a positive learning environment (including, but not limited to, discrimination and sexual misconduct).

The list of key university student resources to enable learning include (but are not limited to)   
the University’s Center for Student Success, Writing Center, Center for Learning Resources, and the Accessibility Resource Center.