

Fall 2022

**College of Health and Human Services**  
**Department of Public Health Sciences/School of Data Science**

**Faculty:** Dr. George Shaw, Jr.

**Email:** [gshaw11@uncc.edu](mailto:gshaw11@uncc.edu)

**Office:** CHHS 352

**Office Hours:** Tuesday, 4-5pm; Thursday, 10-11am or by appointment (face-to-face or virtually)  
*My preferred method of contact is by UNCC email. You can text the office number as an alternative method to contact me (704-562-0021).*

**Graduate Assistant:** Chieh Wu

**E-mail:** [cwu21@uncc.edu](mailto:cwu21@uncc.edu)

**Office Hours:** By appointment only (virtual)

**Course Description:**

Business Intelligence is a collection of computer-based techniques used to extract, identify and analyze data. Analytics is key in the transformation of the healthcare industry. Healthcare business intelligence can provide organizations with the ability to improve quality of care, increase financial efficiency and operational effectiveness, conduct innovative research and satisfy regulatory requirements. Business Intelligence provides better access to information. It provides current and predictive views across the enterprise. Common functions of BI are reporting, data mining, analytical processing, knowledge management, and data visualization. Topics include: elements of business intelligence, business analytics, data visualization, data mining, data warehousing, and business performance management.

A class schedule document describes the topics to be covered each week during the semester. Given the potential for changes to this schedule, this document will be a living, fluid document. The current version will be maintained on the class Canvas site.

**Learning Objectives:**

- Describe the major concepts and components of business intelligence in healthcare.
- Critically evaluate the use of business intelligence for supporting decision making in healthcare organizations.
- Understand and use software tools that make up business intelligence.
- Plan and build a data visualization dashboard.

**Pre or Co-requisite:**

HCIP 5376 and HCIP 6380

**Meeting Times:**

Wednesdays, 5:30-8:15pm

Room 109, CHHS

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If we have to move the course online or alter our meeting sessions due to unforeseen health interruptions, we will use a synchronous format, meeting via Zoom. The required link to access those virtual meetings will be made available through announcements and the Canvas homepage.

**Required Materials:**

There is no required textbook for this class. Required readings will be provided by the instructor and peers through article discussions. Required readings will be accessible on the course Canvas site. The goal for this class is to provide hands-on training exercises to build Tableau and R data visualization skills.

*Teaching Material Textbooks (not required):*

1. Healthcare Business Intelligence: A Guide to Empowering Successful Data Reporting and Analytics

<https://onlinelibrary.wiley.com/doi/book/10.1002/9781119205326>

\*This book is available free of charge through the library.

2. Benevento D, Rowell K, & Steeger J,. Tableau for Healthcare, Fourth Edition. HealthDataViz; 2021.

**Required Software:**

- Tableau Desktop (Required), Tableau Prep is useful but not required. Educational Licenses will be provided on the Canvas site to support installation onto your IT system.

Alternative: If you don't want to run Tableau on your computer you can use it via UNC Charlotte's virtual desktop service called Apporto (<https://uncc.apporto.com/>).

- R and R Studio

**Permission to Use Course Materials:**

Majority of the course PowerPoint slides, assignments, quiz(zes), and the Data Analytics Team Project Outline/Rubric were created or inspired by Dr. Laura Gunn, Associate Professor of Public Health Sciences & Director of Health Analytics, University of North Carolina at Charlotte. Permission to use, modify, and/or distribute any of these materials must be approved in writing by Dr. Shaw.

**Course Activities**

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The course is designed to engage you in a process of in-class activities (face-to-face), and post-class activities with peer interaction.

### *In-Class Activities*

Our class sessions are intended to elaborate on and supplement the class readings, not merely to regurgitate this material. We will have student led article discussions, project discussions, and mini-lectures. Some topics will be covered in much greater detail in class than offered by the readings. I encourage you to use class time to ask questions.

### **Attendance Expectations**

I do not plan to take attendance during our class sessions. Please be aware that I will nonetheless maintain a record of your participation throughout the semester. To participate meaningfully in our classes, you'll need to fully engage your active listening skills and participate in the lab exercises. You will gain more from the course by engaging in dialogue with your colleagues and incorporating professional experiences into the framework of the course topics.

I will make all reasonable accommodations to help you succeed in this course. If you have an unexpected personal, work emergency or urgent situation that affects your ability to participate in a class session or complete an assignment by an assigned due date, please contact me via email ([gshaw11@uncc.edu](mailto:gshaw11@uncc.edu)) before our class session, if possible.

**Preferred Gender Pronoun:** This course affirms people of all gender expressions and gender identities. If you prefer to be called a different name than what is indicated on the class roster, please let me know. Feel free to correct me on your preferred gender pronoun (or name).

### **Grading Criteria:**

<b>Course Element</b>	<b>Percentage</b>
Class Participation (E.g. module exercises, student led article discussions)	30%
Business Intelligence (BI) Tool Presentations	15%
Midterm	20%
BI Team Project Project Overview: Students identify a dataset of interest, develop a hypothesis, select appropriate methods to test it, develop programming code to run their analysis in a statistical software package and, finally, present their findings in written and oral form.	25%
BI Team Project Presentations	10%

Guidelines for each assessment are provided within the course Canvas site. In general, I will post grades for all graded assessments within approximately 10 days.

### *Grading Scale*

A 100 % to 90.0%  
B <90.0 % to 80.0%  
C <80.0 % to 70.0%  
D <70.0 % to 60.0%  
F <60.0 % to 0.0%

### **Syllabus Revision:**

The standards and requirements set forth in this syllabus may be modified at any time by the course instructor. Notice of such changes will be by announcement in class or by email (to your UNCC email address). Changes will generally be made only with prior notification and discussion with the class. No changes will notably increase the course requirements, or alter submission schedules in ways that would substantially challenge students' abilities to succeed in the course while balancing other obligations.

### **Late Assignments will be handled in the following manner:**

1. Late assignments will occur the following point reduction:
  - a. Less than 24 hours – 5%
  - b. 2-3 days late – 10%
  - c. 3 or more – 20%
  - d. If more than 30 days, the assignment will not be accepted.

### **Classroom Environment:**

#### **Classroom Conduct:**

I will conduct this class in an atmosphere of mutual respect. I encourage your active participation in class discussions. We will exercise oversight and will have responsibility to manage the discussions so that ideas and arguments can proceed in an orderly fashion.

Emails to the Instructor: I welcome email questions when they are important for you to complete an assignment on time, in cases when there is no class scheduled before the assignment is due, or require privacy. For reminders concerning due dates, assignments changes, or documentation access issues through Canvas, you can contact the GA.

Please use the following format for the "subject" line of any emails you send me:

6396: provide a concise subject line

As we are in a business context course, emails should be brief and concise, easy to understand. If your question involves more than a few sentences, it is more than likely too complex for email and would be more appropriately asked during office hours or verbal communication. I

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am willing to speak with you virtually – given enough time – using one of the communication mediums provided through the university (i.e. Zoom, Google Meets).

### Health and Safety

You are encouraged to work directly with your instructor regarding absence(s) related to health issues. Please adhere to the following:

(1) Complete your Niner Health Check each morning as necessary. (2) Do not come to campus if you are sick. Please protect your health and the health of others by staying home. (3) If you are sick: If you test positive or are evaluated by a healthcare provider for symptoms of COVID-19, indicate so on your Niner Health Check to alert the University. Representatives from Emergency Management and/or the Student Health Center will follow up with you, and your instructors will be notified of the need for accommodations, as necessary. (4) If you have been exposed to COVID-19 positive individuals and/or have been notified to self-quarantine due to exposure, indicate so on your Niner Health Check to alert the University. Representatives from Emergency Management and/or the Student Health Center will follow up with you as necessary. Submit a copy of your Niner Health Check notification email to your instructors. If you need any additional support verifying your absence after you have communicated with your professors, submit an [online request form](#) to Student Assistance and Support Services (SASS). If you are fully vaccinated against COVID-19, please complete the reporting form available on the [Niner Nation Cares website](#) to be exempt from the daily health check requirement.

### Academic Integrity:

All students are required to read and abide by the Code of Student Academic Integrity. Violations of the Code of Student Academic Integrity, including plagiarism, will result in disciplinary action as provided in the Code. Students are expected to submit their own work, either as individuals or contributors to a group assignment. Definitions and examples of plagiarism and other violations are set forth in the Code. The Code is available from the Dean of Students Office or online at: <https://legal.charlotte.edu/policies/up-407>. Faculty may require students to demonstrate that graded assignments completed outside of class are their own work.

All work you submit needs to be your own. In addition, all material must be properly referenced. You must cite any ideas that are not directly your own. If you are in doubt, cite. Material taken verbatim (word for word) from a reference must appear in quotes, followed by a citation. References include any material retrieved from the Internet. A rule of thumb is that anytime you take more than three consecutive words verbatim from a reference, the material needs to be in quotes. Minimize your use of direct quotes. Work that is comprised primarily of quotes is not acceptable. Plagiarism, intentional or not, is a serious academic offense. For the purposes of this course, students who submit the work of others as their own or do not give

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appropriate credit to their sources of information will receive a zero on the assignment. Students will not be able to revise and resubmit their work.

**Course Credit Workload:**

Class work for this course may include but is not limited to: required readings, library research, written assignments, programming assignments, exams, discussion posts, and completing assessments.

**Support Services:**

**Food Security**

Food insecurity is defined by the USDA as “a lack of access to enough food for an active, healthy life.” Food insecure categories include: reduced caloric intake, reduced food quality, lack of variety in diet, disrupted eating patterns, and hunger. Research shows that college students experience food insecurity at higher rates than the American household rate, and that food insecurity can negatively impact academic performance and persistence. In recognition of this problem, UNC Charlotte offers assistance to students facing food insecurity through an on-campus food pantry. The Jamil Niner Student Pantry is located on the east edge of campus at 1224 John Kirk Road. It has regular hours which may change from semester to semester; please see the website at <https://ninerpantry.charlotte.edu/> for schedule and details on its services, as well as resources about hunger and food insecurity among college students.

**Non-Discrimination:**

All students and the instructor are expected to engage with each other respectfully. Unwelcome conduct directed toward another person based upon that person’s actual or perceived race, actual or perceived gender, color, religion, age, national origin, ethnicity, disability, or veteran status, or for any other reason, may constitute a violation of University Policy 406, The Code of Student Responsibility. Any student suspected of engaging in such conduct will be referred to the Office of Student Conduct.

**Healthy Relationships and Title IX:**

UNC Charlotte is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence, and stalking. If you (or someone you know) has experienced or experiences any of these incidents, know that you are not alone. UNC Charlotte has staff members trained to support you in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with civil protective orders, and more.

Please be aware that all UNC Charlotte employees, including faculty members, are expected to relay any information or reports of sexual misconduct they receive to the Title IX Coordinator. This means that if you tell me about a situation involving sexual harassment, sexual assault, dating violence, domestic violence, or stalking, I am expected to report the information to the Title IX Coordinator. Although I am expected to report the situation, you will still have options about how your case will be handled, including whether or not you wish to pursue a formal

complaint. Our goal is to make sure you are aware of the range of options available to you and have access to the resources you need.

If you wish to speak to someone confidentially, you can contact the following on-campus resources, who are not required to report the incident to the Title IX Coordinator: (1) University Counseling Center (<https://caps.charlotte.edu/services/make-appointment>, 7-0311); or (2) Student Health Center (<https://studenthealth.charlotte.edu/>, 7-7400). Additional information about your options is also available at [titleix.uncc.edu](http://titleix.uncc.edu) under the “Students” tab.

All students are required to abide by the UNC Charlotte Sexual Harassment Policy and the policy on Responsible Use of University Computing and Electronic Communication Resources. Sexual harassment, as defined in the UNC Charlotte Sexual Harassment Policy, is prohibited, even when carried out through computers or other electronic communications systems, including course-based chat rooms or message boards.

### **Safety and Security Information**

UNC Charlotte’s Department of Safety and Security offers the following safety tips:

- Ensure your cell phone number is in the Banner Self-Serve system (Emergency Text Phone Number box) to receive text message NinerAlerts. NinerAlerts are sent via a variety of methods when there is a threat to campus safety or a change in operating conditions.
- For every NinerAlert that is issued, an action directive is also included in the body of the message. Action directives can include run, hide, fight; seek shelter; or evacuate. Visit <https://emergency.charlotte.edu/> for more information on what each directive means.
- Download the Livesafe app. This connects you to campus police via phone or text 24/7. 911 dialed from a mobile phone connects to CMPD and can slow down response. Alternatively, you can put the UNC Charlotte Police emergency number in your phone: 704- 687-2200.

### **Religious Accommodation:**

Students who, acting in accordance with this Policy, miss classes, examinations or other assignments because of a religious practice or belief must be provided with a reasonable alternative opportunity to complete such academic responsibilities. It is the obligation of students to provide faculty with reasonable notice of the dates of religious observances on which they will be absent by submitting a [Request for Religious Accommodation Form](#) to their instructor prior to the census date for enrollment for a given semester. The census date for each semester (typically the tenth day of instruction) can be found in [UNC Charlotte’s academic calendar](#).

### **Student Grievances:**

Student Grievances Students enrolled in courses at the University of North Carolina at Charlotte who would like to file a complaint regarding their experience may do the following: 1. Refer to the UNC Charlotte Student Grievance Procedure. Students may also contact UNC Charlotte’s regional accrediting agency, the Southern Association of Colleges and Schools Commission on Colleges. 2. Students residing outside of North Carolina while attending UNC Charlotte may file a complaint in their state of residence. As required by federal regulations, students are directed to the list of resources here, compiled and updated by the State Higher Education

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Executive Officers.

**Withdrawals:**

Students are expected to complete all courses for which they are registered at the close of the add/drop period. If you are concerned about your ability to succeed in this course, it is important to make an appointment to speak with me as soon as possible. The University policy on withdrawal allows students only a limited number of opportunities available to withdraw from courses. It is important for you to understand the financial and academic consequences that may result from course withdrawal.

**Incompletes:**

The grade of "I" may be assigned at the discretion of the instructor when a student who is otherwise passing has not, due to circumstances beyond his/her control, completed all the work in the course. The missing work must be completed by the deadline specified by the instructor, and no later than 12 months. If the "I" is not removed during the specified time, a grade of F, U, or N, as appropriate is automatically assigned. The grade of "I" cannot be removed by enrolling again in the same course, and students should not re-enroll in a course in which they have been assigned the grade of "I".

**Disability Support Services:**

Students in this course seeking accommodations to disabilities must first consult with the Office of Disability Services and follow the instructions of that office for obtaining accommodations. The Office of Disability Services works with current undergraduate and graduate students along with prospective students to ensure equal access to UNC Charlotte's campus and educational programs.

All services are dependent upon verification of eligibility. Once approved for services, students receive accommodations which are based upon the nature of an individual's disability and documented needs. Students are strongly encouraged to register or check-in for their accommodations with a Disability Services counselor as soon as they have registered for classes. Accommodations are not retro-active and will not begin until the student notifies his or her faculty by providing the Letter of Accommodation.

Please visit the Office of Disability Services at for additional resources, email questions to [disability@uncc.edu](mailto:disability@uncc.edu), or call 704-687-0040 for more information.

**Student Support Services:**

Be sure to take advantage of the wealth of resources and support available at UNC Charlotte. Some of the resources available to you include the University Writing Resource Center, University Counseling Center, and the J. Murrey Atkins Library.

- [University Center for Academic Excellent \(UCAE\) | \(704\) 687 7837 | unccucae@uncc.edu](#)
- [University Writing Resources Center \(WRC\) | 704-687-1899 | wrchelp@uncc.edu](#)
- [Veteran Student Services | 704-687-5488 | veteranservice@uncc.edu](#)
- [University Counseling Center | 704-687-0311](#)
- [Multicultural Resource Center | 704-687-7121 | mrc@uncc.edu](#)
- [List of computer labs on campus](#)



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➤ [Atkins Library Laptop Lending program](#)

**Counseling and Psychological Services**

The Center for Counseling and Psychological Services <https://caps.charlotte.edu/> offers many supportive services for students. Students can make a virtual appointment.

Course Schedule: [https://docs.google.com/document/d/1o6H-lhW-xax1F8PQ\\_UvAV4yaVM4q2nZ7XLd80POH7fA/edit](https://docs.google.com/document/d/1o6H-lhW-xax1F8PQ_UvAV4yaVM4q2nZ7XLd80POH7fA/edit)