

## **DSBA 6400 – Internship Data Science and Business Analytics**

Revised by Dr. Xi (Sunshine) Niu, May 2021

Course Credit: 3 Graduate Credits

### **Course Overview and Goals:**

The Data Science and Business Analytics Internship is an opportunity for students to apply theories, ideas, principles, and skills learned in the classroom to a capstone project of problem solving in practice. Using the internship site as the “organizational laboratory,” students further develop skills for becoming Data Science and Business Analytics professionals. The internship experience is about understanding data science and business analytics needs and practices within an organizational context, including their culture, computing and management systems, operations, resources, products, services, markets, service areas, and specialty areas. A specific individual at the selected organization, referred to as the *mentor*, is expected to provide internship project supervision and act as a point of contact. The experience is obtained in organizations approved by the DSBA Program under the guidance of a UNC Charlotte supervising faculty and a qualified mentor at the selected organization.

### **Obtaining an Internship:**

We encourage and expect DSBA students to explore internship options through opportunities provided through the program, including:

- Industry Professionals you have met through the program, such as guest speakers;
- Networking events such as the bi-annual DSBA Advisory board meetings;
- DSBA faculty affiliates and part time DSBA faculty members;
- Recent alumni, particularly DSBA students who graduated in the previous year;
- Your classmates.

Networking effectively is an essential skill for all professionals. Using your own initiative will help you develop important skills and help you to obtain an internship that is a closer fit with your professional interests and succeed in your career.

### **Procedures for Approval to Take the Internship Course:**

An Internship must be approved by the DSBA program prior to enrollment, guided by the requirements articulated below. A permit to register for the internship course will be provided only after the following have been complied with:

1. Student has confirmed with program administration their intent to complete an internship *at least a semester prior* to the time the internship is to occur.
2. Student secures a suitable internship opportunity.
3. Student works with the organization to develop an internship setup proposal, which must be approved by program administration. The setup proposal must clearly address the fundamental technical and domain aspects. The proposal must be submitted to and approved by UNC Charlotte supervising faculty well in advance of the semester during which the internship is to occur.

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### **Course Competencies:**

After successfully completing this course, students should be able to:

1. Create innovative strategies for analysis, decision-- making, and problem solving; strategies should incorporate perspectives of various stakeholders and be responsive to our increasingly diverse workforce and society.
2. Demonstrate effectiveness in examining data qualitatively and/or and quantitatively, and in utilizing methods appropriate for the project to analyze information, and to identify patterns and trends.
3. Articulate and model professional and ethical behavior in the workplace.
4. Demonstrate effectiveness in working with others in the organization, and the ability to work effectively with personnel from diverse backgrounds.
5. Demonstrate effectiveness in working as part of a team, listening and responding effectively to the ideas of others, and successfully use negotiation and conflict resolution skills.
6. Demonstrate effectiveness in organizing, synthesizing, and articulating ideas and information in both written and direct communication.

### **Course Conduct and Professional Responsibility:**

The internship serves as an extension of the teaching mission by giving students work experience in the type of organization or research environment in which they will eventually pursue careers.

While serving in graduate internships, students are representatives of the Program. As such, they will act with total professionalism at all times.

Students participating in internships are required to meet the standards of and comply with the policies and procedures of their workplace, such as attire standards and work hours. While at work, students should ensure their level of effort and contribution to the work environment meet (and preferably exceed) sponsor expectations.

### **Internship Requirements:**

1. **Fundamental Aspects** – Internship objectives and activities must clearly address two fundamental aspects. These aspects must be demonstrated unequivocally in all setup, documentation, and reporting.
  - a. **Applied DSBA Techniques** – First, there must clearly be a **significant component of applying Data Science and/or Business Analytics techniques**. This may involve design, implementation, or analysis, but it should represent some tangible advancement of data science and business analytics systems or outcomes for the organization. For example, data entry is certainly an essential part of analytics, and may be very important for an organization, but itself would not represent a significant component of analysis or data science experience on the part of the student. Whereas developing novel predictive analysis using machine learning techniques, or analyzing human language and texts using NLP and text mining techniques would represent a significant DSBA development.

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- b. Domain Content Understanding -- Second, the project must clearly involve learning about the application domain to develop **understanding of and direct relevance to the primary domain of expertise of the organization or unit**. For example, many data Extract, Transform and Load (ETL) activities may involve significant development work, but may focus only on limited knowledge about the pre-defined structure / types of data, rather than the semantics and relevance of the important domain concepts underlying that data. Whereas developing an internal web-based dashboard tool for analysis of business records would require an understanding of many of the domain concepts and how they interact, in order to realize such a system.
2. **Internship Setup Proposal** – A formal proposal through answering a few questions in a Google Form describing the proposed internship project goals, tasks, and deliverables. This should be detailed enough for the internship supervising faculty understand how the proposed internship activity will meet the fundamental aspects. The focus of the setup proposal is on a description and *what* will be accomplished in the internship.
3. **Letter of Agreement** – A letter documenting participation of the organization in the internship program must be signed by the mentor or another responsible official from the organization where the student will be doing the internship. The mentor agreement letter must be provided directly to DSBA Program administration from the respective organization officials to verify approval.
4. **Internship Activity Plan** – Precise activities are typically defined at the start of an internship. A brief activity plan (2 pages containing specifics beyond the setup proposal) detailing objectives, expected tasks, and outcomes to be accomplished during the internship must be developed by the student in consultation with the mentor and participating organization. Within the first two weeks of the internship, each student needs to meet with the internship mentor and, using the syllabus as a guide, articulate more specific objectives and proposed tasks for the internship. The focus of the activity plan is on more specific work tasks and *how* internship activities will proceed (work packages, expected timeframes, etc.).
5. **Regular Reporting** – The student must submit regular progress reports / updates, as determined by the UNC Charlotte supervising faculty (typically every two weeks).
6. **Required Hours** – Students must complete a **minimum of 160 hours** internship experience with the selected organization during the semester of enrollment in the DSBA 6400 Internship course. Internship organizations may require more hours than the program minimum as part of a specific internship offering, and the student must meet that organizational obligation.
7. **Final Report** – The student must write a report detailing the internship experience; details about the report are described later in this syllabus.
8. **Final / Interim Presentation** -- The student must present a final summary of internship experience at a presentation session for the program staff and students. As determined by UNC Charlotte supervising faculty, there may be more than one presentation session in addition to the final presentation, such as a mid-project update.
9. **Post-Internship Mentor Evaluation** – After the internship is complete, a

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representative of the participating organization, typically the mentor, will provide a post-internship evaluation of the student's performance. This evaluation will be considered as a substantial input for the course grade.

**10. Post-Internship Student Evaluation** – After the internship is complete the student will provide a post-internship evaluation of the experience through the standard UNCC end of the semester student course evaluation process.

**11. Final Grade** – UNC Charlotte supervising faculty will evaluate the student's overall performance in the internship to assign the course grade.

### **More About Final Report:**

To demonstrate accomplishment of concrete objectives and assure accountability during the field experience, as well as providing measurable benefits to the organization, each student intern is required to develop a report using the following format.

1. Title Page: Give your internship project a concise, professional, descriptive title. Include the title, the course number, the semester (e.g., Spring 2017), your name, and the names of your faculty advisor and your mentor.
2. Table of Contents
3. Executive Summary: your summary needs to concisely describe the internship experience, and the essential results and conclusions, in about 500 words, single spaced.
4. Introduction
  - Statement of the problem(s), clearly identifying both (a) the data science and/or business analytics aspects, and (b) relevance to the domain (i.e. retail, finance, energy, healthcare, etc.) context.
  - Objectives of the internship experience
  - Review of relevant literature
5. Methods
  - Methods to achieving each objective or barriers to achieving objectives
  - Timeline outlining at what points in the internship experience you performed the management study
  - Description of the site at which you did the internship
  - The role(s) of your internship mentor(s)
6. Results
  - This section should be organized according to the objectives; indicate what learning objectives were achieved, and which ones were not achieved and why
  - Describe how the student's experience in the internship relates back to the literature
  - Describe how the internship experience integrated the student's course work in the DSBA Program. Note: This is an essential part of the report and will be an important element taken into account in assessing the adequacy of the internship report
  - Describe the opportunities the internship afforded you to apply skills acquired in the classroom

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- Describe observations you were made that enhanced your training in the DSBA program
7. Discussion and Conclusions
- Your general conclusions drawn from the internship experience
  - Describe any new avenues of inquiry that the internship experience suggested you should pursue to be a more effective manager
  - Discuss exposure to operational issues that you might want to more fully understand by taking courses in the future
  - Describe the what kinds of socialization experiences were afforded by the internship opportunity e.g., helped to teach you about professionalism or how to behave in particular roles
  - Discuss what opportunities the internship provided to learn about the art of mentorship
  - Describe organizational or leadership theories used or not viewed as useful in the internship
  - Describe how the internship or your preparation for it might be improved

### **Grading:**

- Activity plan and progress reports, submitted in a timely fashion 20%
- Final Report and Presentation, 80%

### **Role of Mentor:**

The mentor is a specific individual at the internship organization who provides internship project supervision and acts as a point of contact with the DSBA program. The mentor is expected to take on the following responsibilities to support the internship experience.

- The mentor is responsible for the student's activities and learning during the internship experience.
- The mentor serves as a supervisor and advisor for the students to observe and advise the student routinely.
- The mentor periodically consults with responsible faculty on the student's progress.
- The mentor completes a student evaluation form at the end of the internship experience.

### **Role of Supervising Faculty:**

The supervising UNC Charlotte faculty member is the liaison between the student, mentor, and the DSBA Program. The supervising faculty member may assist in the selection of participating organizations and maintains communication with the student and mentor throughout the internship experience. Supervising faculty members are selected by the DSBA Program in consultation with the student and participating organization.

### **Course Policies:**

Students are required to be familiar with the UNC Charlotte Policies on Student Matters (<https://legal.uncc.edu/policies/chapter-400>). For coursework in particular, students must abide by the policies on Academic Integrity and Responsible Conduct.

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Academic Integrity Students are responsible for knowing and observing the requirements of The UNC Charlotte Code of Student Academic Integrity (<https://legal.uncc.edu/policies/up-407>). The code forbids cheating, fabrication, or falsification of information, multiple submission of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty.

Responsible Conduct All students are required to abide by the UNC Charlotte Code of Student Responsibility (<https://legal.uncc.edu/policies/up-406>), which regulates matters of student conduct in the University community. The code is designed to assist students in their development by creating a community that values scholarship, integrity, respect, accountability, dignity, honor, compassion, character, and nobility.

The purposes of the student conduct process are to: maintain an environment that supports and enhances the educational purpose of the University; protect the health, safety, welfare, and property of all persons in the University community; encourage appropriate standards of individual and group responsibility to the University community; and foster the personal, social, and ethical development of members of the University community. Please review these policies carefully.

Disability Services: UNC Charlotte is committed to access to education. If you have a disability and need academic accommodations, please provide a letter of accommodation from Disability Services early in the semester. For more information on accommodations, contact the Office of Disability Services at 704-687-0040 or visit their office at Fretwell 230.