Teaching Statement

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1 Introduction

In this document, I discuss my overall approach towards teaching and my experience and specific aspects of the two courses I have taught at UNC Chapel Hill undergraduate business program: *BUSI 403: Operations Management* and *BUSI 532H: Healthcare and Service Operations Management*.

2 Teaching Philosophy

I base my teaching philosophy on the following principles:

1. **Motivation through real world examples**. Undergraduate business students come from diverse backgrounds. To underscore the importance of the subject matter, I employ practical demonstrations, reading analysis, and discussions on recent events. I draw upon my research experiences in healthcare operations, professional work experience in manufacturing and oilfield services, and insights from students' experience from internships and operating family-owned businesses.

2. **Building engagement in class room**. Active participation in the classroom is essential for nurturing intrinsic motivation, deepening emotional connections to the material, stimulating critical thinking, and enhancing collaboration among peers. I achieve this through diverse techniques: in-class exercises, case studies, simulations, multimedia presentations, discussions, polls, group projects, and supplementary readings from current events.

3. **Building subject matter competence**. Operational decision-making in organizations blends managerial insights with quantitative analysis. I believe students should be proficient in both areas. To this end, I establish a solid foundation in the mathematical models central to operations management and guide the development of insights into the trade-offs involved in these decisions.

In the following sections, I detail how I implement these principles in my teaching approach.

3 BUSI 403: Operations Management

This course is a mandatory curriculum component for business majors at UNC Chapel Hill. It spans a semester comprising 26 sessions, two mid-term exams, a final examination, and a concluding course project. Enrollment is typically around two sections of 50 students, encompassing a mix of sophomores, juniors, seniors, and business majors and minors. This course is a prerequisite for various other courses within the undergraduate business program.

In light of the diverse student backgrounds and expectations, there is a broad spectrum of motivations. Some students focus on meeting the course requirements, while others are eager to absorb the material for its application in their future careers. Additionally, students exhibit varying degrees of comfort with quantitative models and qualitative aspects of the subject matter.

Given this diversity in student expectations and backgrounds, in alignment with my teaching philosophy, I employ the following strategies within the class to develop motivation, engagement, and subject matter competence.

First, to motivate students on the importance of operations management, I emphasize the significance of operations management for organizations in initial class sessions, highlighting the consequences of poorly performing operations on financial performance and customer satisfaction. I illustrate these concepts with current examples, such as the problematic launch of the Boeing Dreamliner[1] and the Cyberpunk 2077 video game.[2] These examples span manufacturing and service sectors and are engaging for students. Subsequently, I draw from firms like Zara and Starbucks to illustrate how operations management can confer a competitive advantage, especially during economic downturns. Additionally, I showcase the career paths of industry leaders like former Apple CEO Tim Cook and Salesforce co-CEO Keith Block, underlining the importance of operations expertise in ascending to top leadership positions.

Second, I employ interactive methods to foster engagement, including games to illustrate key concepts such as lean operations and the learning curve. For instance, I use an in-class game to simulate a small assembly line, comparing push and pull systems. This hands-on experience deepens students' understanding of lean principles. When covering the learning curve, I repeatedly divide students into groups to assemble a small toy, demonstrating the learning curve concept. Recognizing that this course may be the first exposure to quantitative business concepts for many students, I offer in-class exercises and additional sessions for Microsoft Excel and other quantitative tools. Feedback from students has been consistently positive regarding this additional support.

This course encompasses various topics, including demand forecasting, process capac-

[1] https://www.wsj.com/articles/SB125483312078667463

[2] https://www.nytimes.com/2020/12/19/style/cyberpunk-2077-video-game-disaster.html

ity analysis, inventory management, operations strategy, aggregate planning, material requirements planning, supply chain management, waiting line analysis, quality management, and project management. To develop proficiency in the quantitative aspects, I employ in-class examples, assignments, and practice problems, ensuring alignment with the content of exams. To nurture an understanding of qualitative aspects, I conduct non-evaluative, in-class quizzes at the start of each session, covering material from the previous class. These quizzes encourage participation and facilitate discussions without impacting grades, enhancing comprehension. Students undertake a final course project to reduce the integration of concepts discussed in class. This project entails visiting local businesses to analyze their operations. Students are required to prepare a report and present their findings in class. This practical exercise deepens their understanding of operations management and exposes them to diverse operational processes across various industries, from restaurants to retail stores, food delivery services, and pharmaceuticals. Additionally, it contributes to the development of their presentation skills.

Instructor evaluations for the course have ranged between 4.54 and 4.86 on a 5-point scale. In recognition of my teaching efforts, I was nominated for the prestigious Weatherspoon Teaching Award in 2023.

4 BUSI 532H: Healthcare and Service Operations Management

This course is an honors elective designed for business majors at UNC Chapel Hill, and spans a semester, encompassing 26 sessions. It includes a mid-term examination, a final examination, and a culminating course project.

When I initially taught this course in 2018, I adhered closely to the existing curriculum from my colleagues, opting for a conservative approach. Subsequent years witnessed a substantial transformation as I actively integrated student feedback and leveraged my experiences. The course shifted from a primarily lecture-based format to a case-centric instructional approach. Additionally, I introduced a variety of in-class exercises, games, and simulations, further augmenting the curriculum's interactivity. In response to student feedback, the course evolved to encompass a more comprehensive exploration of healthcare operations, prompting its rechristening to "Healthcare and Service Operations Management."

In this period, course enrollment increased from 17 students in Spring 2018 to 27 students in Spring 2023. My teaching evaluations consistently ranged between 4.08 and 4.9. Notably, my lowest evaluation score was recorded in Spring 2020, a challenging time when the course had to pivot to online instruction due to the pandemic. I believe that the exceptional circumstances of the pandemic and the abrupt transition to online

teaching for a course deeply rooted in case studies and interaction were the primary factors contributing to this temporary dip. Excluding the outlier score in 2020, my teaching evaluations ranged from 4.71 to 4.9.

Consistent with my teaching philosophy, I employ the following strategies within the class:

First, to inspire students about the significance of healthcare and service operations, I draw from my own research and professional experiences. Contemporary events serve as a rich source of relevance. For instance, the COVID-19 pandemic and its impact on healthcare capacity constraints and emergency room wait times are relevant examples to underscore the crucial nature of healthcare operations.

Second, to build engagement, I employ various techniques. I employ a primarily case-centric teaching method, which helps students bridge the gap between theory and real-world problems in managing service organizations. The case-based methodology fosters in-class discussions and cultivates a deeper understanding. Additionally, I employ a board game[3] simulating the management of an emergency room subjected to random arrivals and service times. This offers students a tactile, practical experience in the complexities of healthcare system management. A simulation game[4] where students manage a rental car business effectively illustrates inventory management and pricing dynamics within service organizations.

Third, In this course I target to develop student expertise in important aspects of healthcare and service operations. I employ quantitative and qualitative methods to build subject matter competence. I divide the course into seven modules: Service Strategy and Design, Service Capacity Management, Managing Customers, Service Process Improvement, Managing Employees, Revenue Management, and Managing Innovation. Each module consists of three to four sessions.

In these modules, I cover healthcare operations concepts such as managing waiting rooms at emergency rooms, managing capacity and workforce management at operating rooms, lean and Six Sigma-based process improvement at hospitals, managing pharmacies, and the basics of healthcare insurance models. These topics serve the dual purpose of covering essential service operations concepts and the basics of healthcare operations.

I also cover other service management, such as influencing customer behavior, revenue management at airlines and hotels, and managing platform-based businesses such as Uber and Airbnb.

To ensure subject matter competence, I employ quantitative and qualitative methods. In-class examples, homework assignments, and mid-term and final examinations evaluate the quantitative facets of the course. The final simulation game serves as an additional assessment, probing the quantitative dimensions of revenue management and

[3]https://www.happyharpygames.com/p/emergency.html
[4]https://hbsp.harvard.edu/product/7005-HTM-ENG

the newsvendor model.

5 Future Courses

In the future, I would be keen on developing undergraduate and MBA courses that bring together my experience in healthcare operations, technical skills in predictive and prescriptive models, and programming skills in Python and R to studies related to healthcare analytics and healthcare operations. For PhD courses, I would love to develop and teach courses related to seminar courses in Healthcare operations, dynamic programming, robust optimization, and large-scale integer and linear programming.